

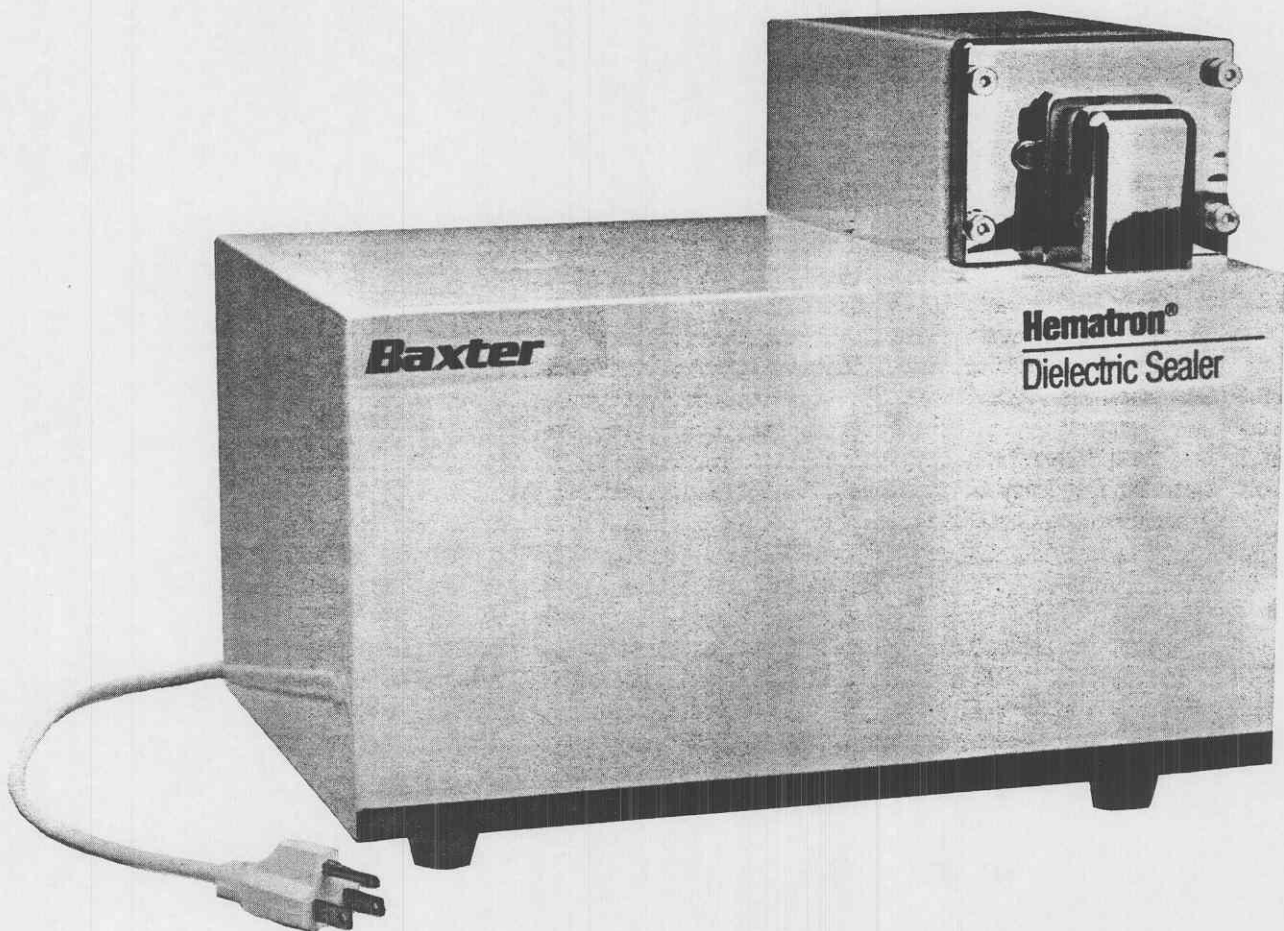
Service Manual

Fenwal®
Hematron® Dielectric Sealer
4R4330/4R4340

Baxter



Hematron® Dielectric Sealer



Baxter Healthcare Corporation
Fenwal Division
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1.0 General Information

1.1 Introduction

This manual contains operation and service information for the Fenwal® 4R4330 and 4R4340 Hematron® Dielectric Sealers. Sections 1 and 2 provide general information and instructions for operation and routine maintenance, and are intended for all users. Sections 3 through 5 contain technical servicing information and are intended for use only by qualified service personnel.

1.2 Description

The Hematron® Dielectric Sealer is an electronic device designed to produce hermetic, snap-apart seals in Fenwal Blood-Pack® tubing. Seals are made by placing the tubing in the sealer head and depressing a trip switch with the tubing. Segments may be formed by advancing the tubing through the sealer head to produce a series of seals.

The 4R4330 Hematron® Dielectric Sealer operates on 115 VAC, 50-60 Hz and the 4R4340 operates on either 115 VAC or 230 VAC, 50-60 Hz power. Dielectric heating is adjustable to provide sealing power appropriate to the tubing wall thickness and line voltage. See Table 1-1 for Specifications.

Table 1-1 Specifications

Parameter	Value/Description
Listing	4R4330: CSA, UL, FCC Grant of Certification, Section 18.125
Input Voltage	4R4330: 115 VAC 4R4340: 230 VAC
Input Frequency	50/60 Hz
Input Power	150 Watts maximum
Input Current	4R4330: 1.2 Amperes 4R4340: 0.6 Amperes
Dielectric Strength	Greater than 1,000 VAC
Fuse	2 Amperes, Type 3AG, SB
Dimensions	24.1 cm H x 23.5 cm D x 31.1 cm W (9½" x 9¼" x 12¼")
Weight	8.5 kg (18.75 lb)
RF Frequency	40.68 MHz Nominal
Maximum Tubing Size	3.9 mm (0.153") inside diameter, 0.5 mm (0.02") wall thickness
Power Cord	Three wire SVT 18 gauge (AWG) 2.4 m (8 ft) long with attached molded plug
Storage Humidity	0%-95% relative humidity, non-condensing
Storage Temperature	30°F to 140°F

1.3 Warranty

Baxter Healthcare Corporation, Fenwal Division, (Fenwal) warrants that the equipment shall be free from defects in material and workmanship when delivered to the original purchaser. Fenwal's sole obligation shall be limited to repair or replacement, at Fenwal's option and expense, of the defective part or unit for a period of (1) year following the date of initial delivery.

The warranty extends only to the original purchaser and is not assignable or transferable, and shall not apply to auxiliary equipment, disposable accessories, or light sources.

FENWAL WARRANTS THAT THE EQUIPMENT IS FIT FOR THE PURPOSES AND INDICATIONS DESCRIBED IN THE LABELING WHEN USED IN ACCORDANCE WITH THE DIRECTIONS FOR USE. UNLESS THE EQUIPMENT IS USED IN ACCORDANCE WITH SUCH INSTRUCTIONS, THIS WARRANTY IS VOID AND OF NO EFFECT. NO OTHER EXPRESSED OR IMPLIED WARRANTY EXISTS, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. FENWAL'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY SHALL BE LIMITED TO REPAIR OR REPLACEMENT AT FENWAL'S OPTION. FENWAL SHALL NOT BE LIABLE FOR PROXIMATE, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. MODIFICATIONS, ALTERATIONS, RECALIBRATIONS OR ABUSE, AND SERVICE BY OTHER THAN A FENWAL AUTHORIZED REPRESENTATIVE MAY VOID THE WARRANTY.

1.4 Service Information

While under Fenwal Warranty, the instrument must not be opened by unauthorized personnel.

All repairs must be done by qualified personnel only, and must follow procedures given in the Service Manual.

Contact Fenwal's Product Service Division for service and repair information for all instruments. In USA call (800) 323-9098 (toll free) or in Illinois, (708) 948-4590. Outside of USA, contact your local Fenwal Product Service Division.

Shipping cost for all units returned to Fenwal shall be paid by the customer. **The unit must be packed in its original container or in another Fenwal approved container that will provide adequate protection during shipment.** To ensure prompt return, a Fenwal Product Service Division representative must be notified before shipping any unit for repair. When calling Fenwal's Product Service Division, please be prepared to provide code number and serial number of the unit. A service request number will be issued and should accompany all communications. A brief written description of the problem should be attached to the instrument when it is returned for service.

Fenwal Division will not be responsible for unauthorized returns or for units damaged in shipment due to improper packing.

2.0 Operation

This section contains instruction for the installation, operation and routine maintenance of the Hematron® Dielectric Sealer. Read all instructions carefully before using the unit.

2.1 Unpacking

Each Hematron® Dielectric Sealer is shipped completely assembled and ready to operate. Inspect unit immediately upon receipt and report any defects or damage to the freight carrier and your local Fenwal representative within 24 hours.

2.2 Installation

Operation of the Hematron® Dielectric Sealer is controlled by two switches and one rotary control on the rear panel of the unit (see Figure 2-1).

- A: 115/230 Voltage Selector Switch — Selects voltage corresponding to line output. On the 4R4330 this switch is permanently set in the 115 VAC position.
- B: On/Off Power Switch — Controls AC power to the unit.
- C: Heat Control — Adjusts RF power level to the sealer head.

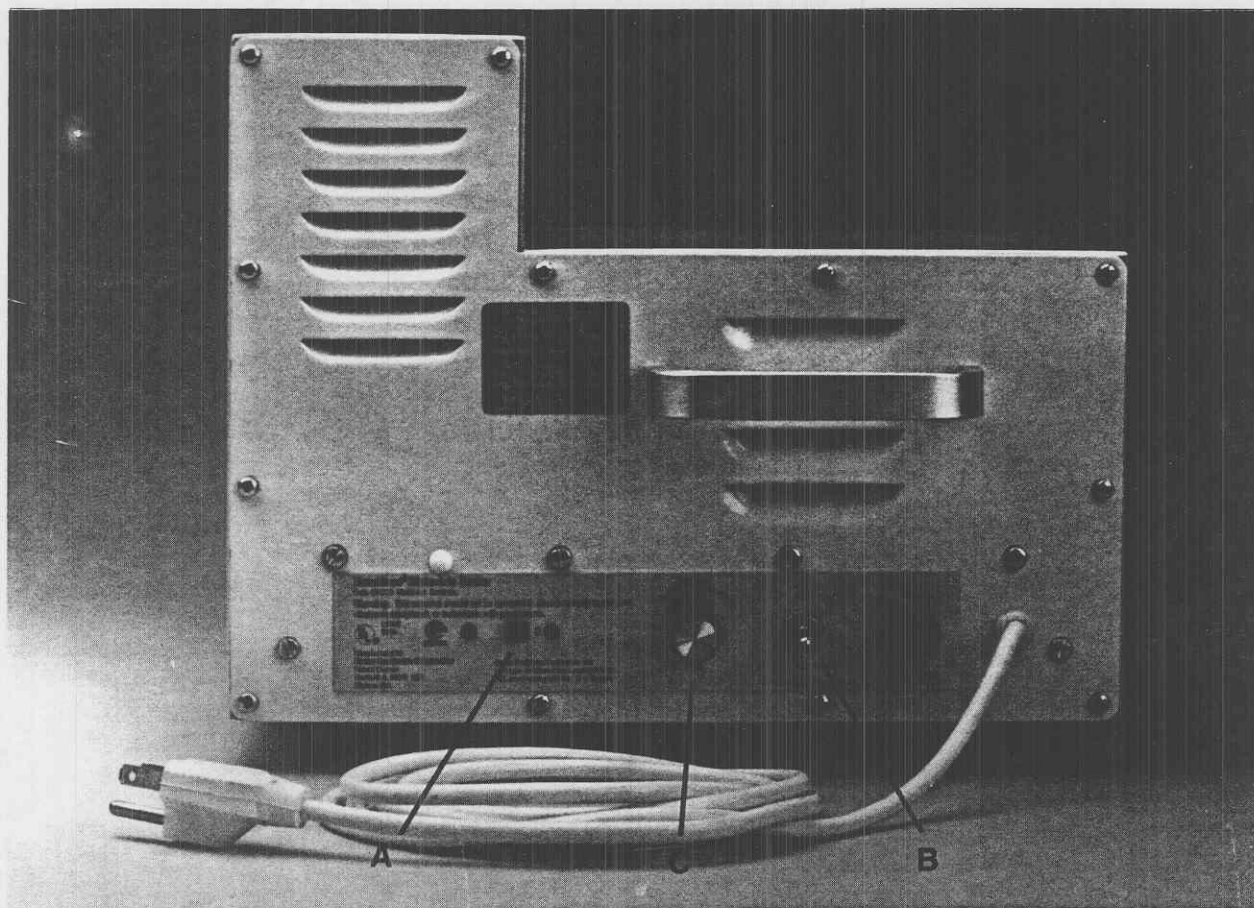


Figure 2-1 Hematron® Dielectric Sealer, Rear View

Caution: On the 4R4340, before connecting power cord to electrical outlet, be certain that the 115/230 Voltage Selector Switch is set to match local line voltage. The switch is held in position by two retaining screws and a guard. To change the switch setting, loosen the retaining screws, slide the switch and guard to new position, and retighten the screws.

2.3 Operating Instructions

Warning: This machine emits a low level of electromagnetic (nonionizing) radiation while sealing. It should not be used by individuals with pacemakers. It should not be used near sensitive electronic equipment.

1. Set On/Off Power Switch to On. Illuminated pilot light on the sealing head indicates that power to the unit is on.
2. Set the Heat Control at the 2 o'clock position.
Note: If the line voltage is low (90 to 100 volts for a 115 VAC nominal line (4R4330, 4R4340) or 180 to 200 volts for 230 VAC nominal line (4R4340)) rotate the Heat Control fully clockwise.
3. Allow at least two minutes for the unit to warm up before using.
4. Place Blood-Pack® Unit on top of the Hematron® Dielectric Sealer. Wipe tubing dry if moisture is present.
5. Position tubing so that the X mark nearest the needle is between the sealing jaws. Gently depress tubing to trigger the sealing process. Hold the tubing in place until the sealing jaws open (see Figure 2-2).
Note: Wait at least three seconds after a seal has been completed before separating tubing at that seal.
Caution: Do not touch the sealing jaws during operation. A burn may result if direct skin contact is made while sealing.
6. Move tubing to the next X mark and repeat sealing process as required.
7. Turn off power to the Hematron® Dielectric Sealer when it is not in use continuously.

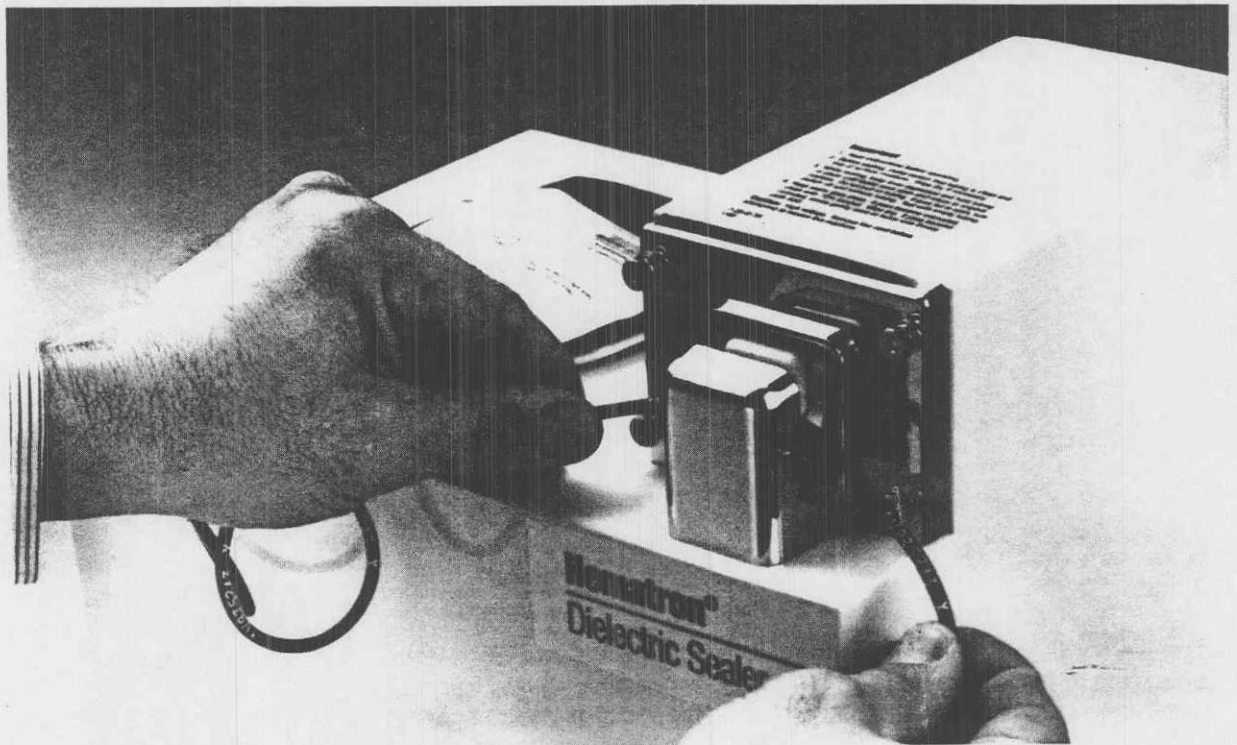


Figure 2-2 Sealing Tubing

2.4 Routine Maintenance

The Hematron® Dielectric Sealer should be cleaned daily after use. If spills occur, the unit should immediately be removed from service and cleaned completely before resuming use.

Caution: Disconnect unit from power source before performing any maintenance procedures.

2.4.1 Sealer Head Cleaning

Caution: Blood and blood products should be treated as potentially infectious at all times. In the event of blood spills, appropriate protective clothing should be worn during cleanup procedures. After removing residual biological material, surfaces which have been in contact with blood or components should be disinfected using a chemical germicide considered as a "sterilant" by the Environmental Protection Agency (EPA). Alternatively, a freshly prepared solution of diluted sodium hypochlorite (household bleach) may be used to disinfect surfaces which will not be harmed by the solution. Diluted solutions ranging from 1 part bleach in 10 parts water to 1 part bleach in 100 parts of water may be used. Regardless of the sterilant or disinfection solution used, remember to remove any residue by rinsing with water (and drying) to ensure that surfaces of the equipment are not subject to corrosion or discoloration. Discard all materials in contact with blood according to institutional policies regarding disposal of biohazardous materials. (Reference: Recommendations for Prevention of HIV Transmission in Health-Care Settings. Morbidity and Mortality Weekly Report (Supplement) Volume 36, Number 25, August 21, 1987.)

Caution: The Hematron® Dielectric Sealer is equipped with an external electromagnetic interference (EMI) shield. To minimize the possibility of interference with other electronic devices, this shield must be in good condition and properly installed whenever the Hematron® Dielectric Sealer is operated.

Access to the sealer head may be gained by removing the four thumbnuts and washers which attach both the clear plastic splash shield and the EMI head shield to the cabinet, and removing both shields.

Note: Do not misplace the flat washers used with the thumbnuts. They must be used during reassembly (see Figure 2-3).

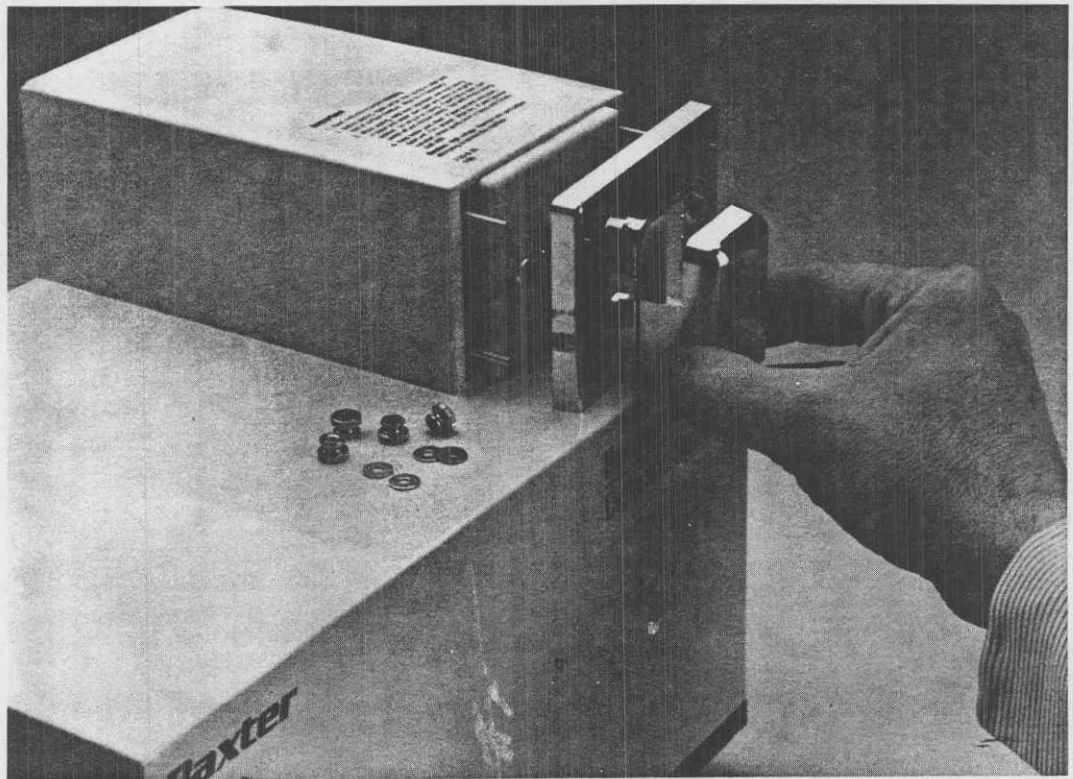
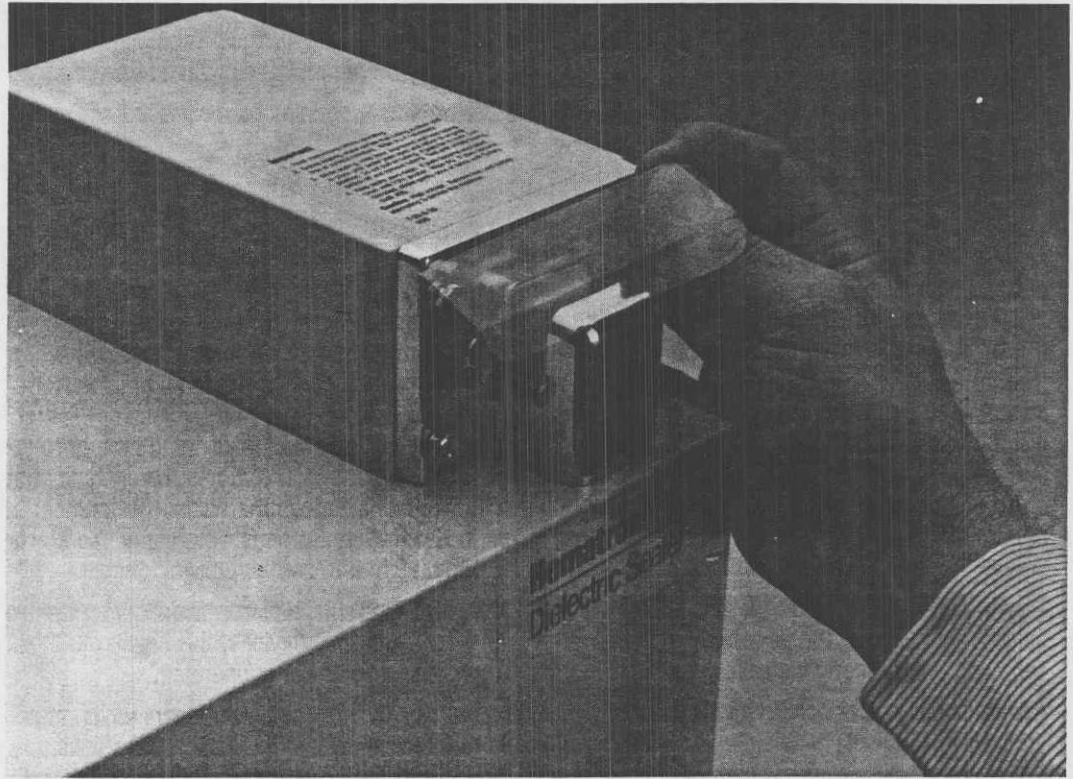


Figure 2-3 EMI and Splash Shield Removal

1. Clean the jaw surfaces of the sealer head gently but thoroughly with a mild detergent or 70% alcohol solution using a swab or small stiff-bristled brush (see Figure 2-4). Wipe the jaws completely dry with a cotton swab or paper towel.

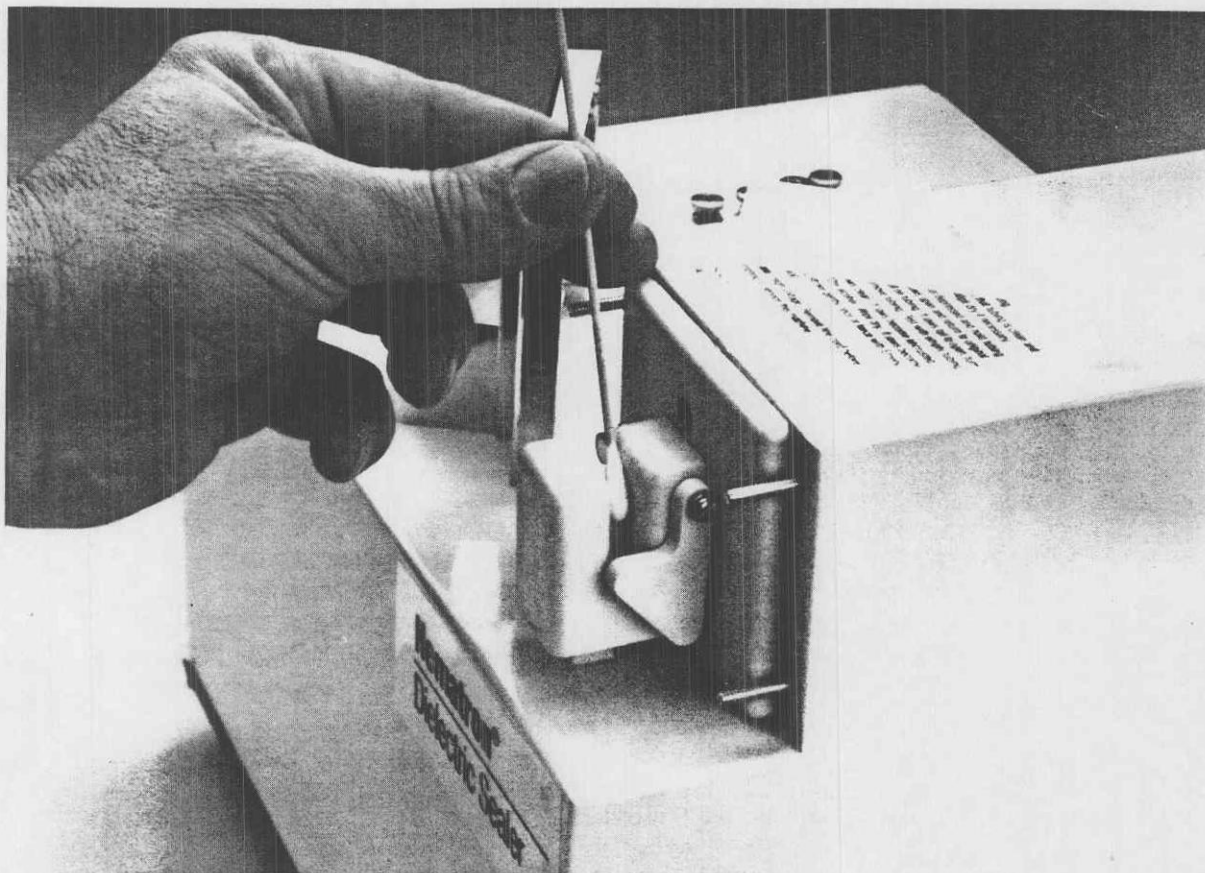


Figure 2-4 Sealer Head Cleaning

2. If the sealer jaws become pitted, clean them using #00 emery cloth. Sand the pitted surface in such a manner as to remove the surface roughness, and clean any resulting debris from the sealer head according to the head cleaning procedure.
3. Replace disposable splash shield.
4. Inspect the sealer head EMI shield for surface contamination or corrosion. Contamination or mild corrosion should be removed by using the cleaning methods outlined in the head cleaning procedure. Do not attempt to use abrasives to remove contaminants as this will result in removal of the electroplated coating of the shield. If corrosion is present that cannot be removed by cleaning, or if the shield has been broken, the shield should be replaced before the Hematron® Dielectric Sealer is returned to service. Replacements may be ordered from the Fenwal Service Center.
5. After any necessary cleaning is completed, replace the EMI shield and splash shield and secure them with the four flat washers and thumbnuts. Be sure to use a flat washer under each thumbnut, and use only finger pressure when tightening them.

2.4.2 Cabinet Cleaning

Clean cabinet surfaces periodically using a cloth moistened with water or a mild detergent. Do not allow liquid to flow through the vent openings in the rear panel. Dry with a soft, lint-free cloth.

3.0 Circuit Description

This section describes the operation of the sealer head, RF generator, timer circuit and power supply circuits. For further details, please refer to the schematic diagram and bills of material contained in the appendix.

3.1 Sealer Head

The Hematron® Dielectric Sealer uses radio frequency (RF) energy to seal tubing. The RF energy heats the tubing placed between the jaws until it melts. The jaws exert a pinching action on the tubing and force the melted tubing walls together to form a seal. Since the sealing jaws themselves do not absorb RF energy, they remain cool and provide a thermal quenching action on the hot tubing after sealing.

The sealer head consists of sealing jaws, an actuate switch (S3), a solenoid (K1) and a limit switch (S4). The sealing jaws contain a stationary and a moveable electrode. When tubing is placed between the sealing jaws, an actuator arm trips the actuate switch to start the sealing cycle. The solenoid is energized to close the sealing jaws and clamp the tubing. The RF generator is then energized and supplies RF energy to the stationary electrode to heat the tubing. After the proper seal thickness has been reached, a limit switch is automatically tripped to end the cycle. The RF generator is turned off and after a slight delay, the solenoid is de-energized, opening the sealing jaws and releasing the tubing. Since RF energy is produced, the sealing jaws are shielded by means of an external electroplated electromagnetic interference (EMI) shield assembly.

3.2 RF Generator

The RF generator provides radio frequency energy for heating the tubing during the sealing cycle. It is housed in a shielded enclosure and its output is coupled to the sealing jaw electrodes by a shielded cable. The RF generator receives power from the power supply and is turned on and off by control signals from the timer circuit card.

The RF generator circuit operates at a nominal frequency of 40.68 MHz. A tank circuit consisting of an air core inductor (L2) and 2 capacitors in parallel determines the frequency of oscillation and is excited by a vacuum tube (V1). Tubing placed between the sealer head electrodes forms one capacitor of the tank circuit, while a variable capacitor (C16) is used to adjust the frequency. Oscillation is sustained by positive feedback from the tank circuit inductor to the tube grid through a capacitor (C18).

The vacuum tube is normally cut off by a negative control voltage from the timer circuit to the control grid. During the sealing cycle, the timer circuit removes the negative control voltage from the control grid, turning the tube on. Radio frequency choke (L1) allows passage of high voltage DC from the power supply while blocking RF signals. A capacitor (C16) passes the RF signal to the tank circuit and sealer head electrodes while blocking the high voltage DC from the power supply. The Heat Control variable resistor allows operator adjustment of the control voltage for increased oscillator output under conditions of low power line voltage.

3.3 Timer Circuit

The sealing cycle of the Hematron® Dielectric Sealer is controlled by a timer circuit, which is contained on a printed circuit card assembly. The timer circuit receives input signals from the seal head actuate and limit switches. Output signals from the circuit energize the RF generator and sealer head solenoid. The sealing cycle is initiated by a signal from the actuate switch (S3) and ends when the limit switch (S4) indicates that the proper seal thickness has been reached. The timer circuit overrides the limit switch control in the event that a seal is not completed within a preset maximum time limit.

While the unit is in the idle condition, capacitor C4 is charged through the normally closed contacts of the actuate switch. When the switch is tripped, it connects capacitor C4 to resistor R7. The voltage charged on C4 supplies current through R7 to the base of transistor Q1, causing it to conduct and energize relay K2. The relay contacts close, energizing the RF generator and the sealer head solenoid. During this time, sealing takes place.

Normally, the sealing cycle ends when the proper seal thickness is reached. At this time, a limit switch is tripped, causing capacitor C4 to discharge rapidly. When capacitor C4 is sufficiently discharged, transistor Q1 turns off and relay K2 is de-energized. As the relay contacts open, the output signals energizing the RF generator and sealer head solenoid are disconnected. The RF generator immediately turns off to stop heating the tubing. The sealing jaws remain closed briefly, allowing the hot tubing to cool. When capacitor C4 is sufficiently discharged through the solenoid, the sealing jaws open to release the tubing.

In the event that a complete seal is not formed within a predetermined time, the sealing cycle will be terminated. The voltage on capacitor C4, which causes transistor Q1 to conduct and energize relay K2 during the sealing cycle, is slowly discharged through resistors R6, R7 and P1. When capacitor C4 is sufficiently discharged, transistor Q1 will turn off, ending the sealing cycle. The maximum sealing time limit is adjustable with variable resistor P1.

3.4 Power Supply

The power supply develops the DC and AC voltages required by the Hematron® Dielectric Sealer circuitry. Primary power enters the unit through the line cord, fuse F1, filter FLT1 and power switch S1. The voltage selector switch connects the dual 115 VAC primary windings of transformer T1 in parallel for 115 VAC operation and in series for 230 VAC operation.

Power to the filaments of vacuum tube V1 is supplied by the 6.3 VAC secondary windings of transformer T1. The 44 VAC center tapped secondary windings of transformer T1 supply power to the timer circuit card and sealer head solenoid.

The 1120 VAC center-tapped secondary windings of transformer T1 (560 VAC to center tap) supply power to the RF generator. A full wave bridge rectifier consisting of diodes D5 and D6 conducts the peak voltage from the transformer for storage in series connected capacitors C12 and C13. The voltages measured from ground to the positive terminal of capacitors C12 and C13 are +395 VDC and +790 VDC, respectively. The +790 VDC is supplied to the plate of vacuum tube V1.

The 220 VAC center-tapped winding (110 VAC to center tap) supplies positive and negative voltage through bridge rectifier REC1 to the grids of V1. Positive 150 VDC is developed across capacitors C1 and C14 and is routed to pin 3 of V1. Negative 150 VDC is developed across capacitors C5 and C8 and is routed through resistor R12 to the control grid of V1 to suppress oscillation. When relay K2 is energized, the -150 VDC is removed from the grid and power control P2 is switched in, completing a circuit to ground through R12.

4.0 Service

This section contains procedures for servicing the Hematron® Dielectric Sealer. It includes an operational test, adjustments and troubleshooting.

Note: Only a qualified engineer or technician should attempt to service the Hematron® Dielectric Sealer. If a qualified engineer or technician is not available, the unit should be returned to the Fenwal Service Center for servicing. See Section 1 (General Information, Warranty, Service) for warranty and service policy.

4.1 Operational Tests

Sealing Test: To verify proper operation, connect the Hematron® Dielectric Sealer to the appropriate power source, 4R4330: 115 VAC, 50-60 Hz; 4R4340: either 115 VAC or 230 VAC, 50-60 Hz as selected with the Voltage Selector Switch. Set the On/Off power switch to the On position and the Heat Control at the 2 o'clock position. Verify that the pilot light on the sealing head is illuminated. Wait for two minutes for the unit to warm up. Insert empty tubing between the sealing jaws and apply pressure to the actuator arm to start the sealing cycle. The sealing jaws should close and the tubing should begin to melt, forming a seal. Note that the sealer head will complete the sealing cycle before the jaws open, even with pressure removed from the actuator arm. The sealing cycle should end when the proper seal thickness is reached. Determine that the seal is complete and that the tubing can be readily separated at the seal. Repeat the above procedure with tubing which has been filled with tap water. The time necessary to complete the seal should not appreciably change and leaks should not result after sealed segments are detached from one another.

Maximum Sealing Time: In the event that RF energy or jaw compression is insufficient to seal the tubing, a timer has been provided to terminate the sealing cycle before reaching desired seal thickness. To verify timer operation, actuate the sealing cycle with the wooden stem of a cotton swab between the sealing jaws. Time the interval until the jaws release. This function is factory preset for a time from 1 to 3 seconds.

Note: Adjustments for sealing thickness and maximum sealing time are located in this section under the heading "Adjustments."

4.2 Sealer Head Removal/Replacement

Caution: Before attempting to remove the sealing head, disconnect the Hematron® Dielectric Sealer from the AC power source.

The sealer head is a moisture-proof unit, constructed of high impact plastic and shrouded by an external electroplated shield. Access to the sealer head may be gained by removing the four thumbnuts and washers which attach the head and splash shields to the cabinet and removing both shields (see Figure 2-3).

Once the shield has been removed, the sealer head may be removed directly from the front of the Hematron® Dielectric Sealer by turning the locking screw counterclockwise until the head is loose (see Figure 4-1). Tilt the top of the head away from the cabinet, lift slightly and slide out of the cabinet. Note that the control and RF coaxial cable will remain attached to the sealer head and must be disconnected by hand.

The above procedure is reversed for sealer head installation. Be sure to reinstall the external shield with four flat washers and four thumbnuts after sealer head replacement.

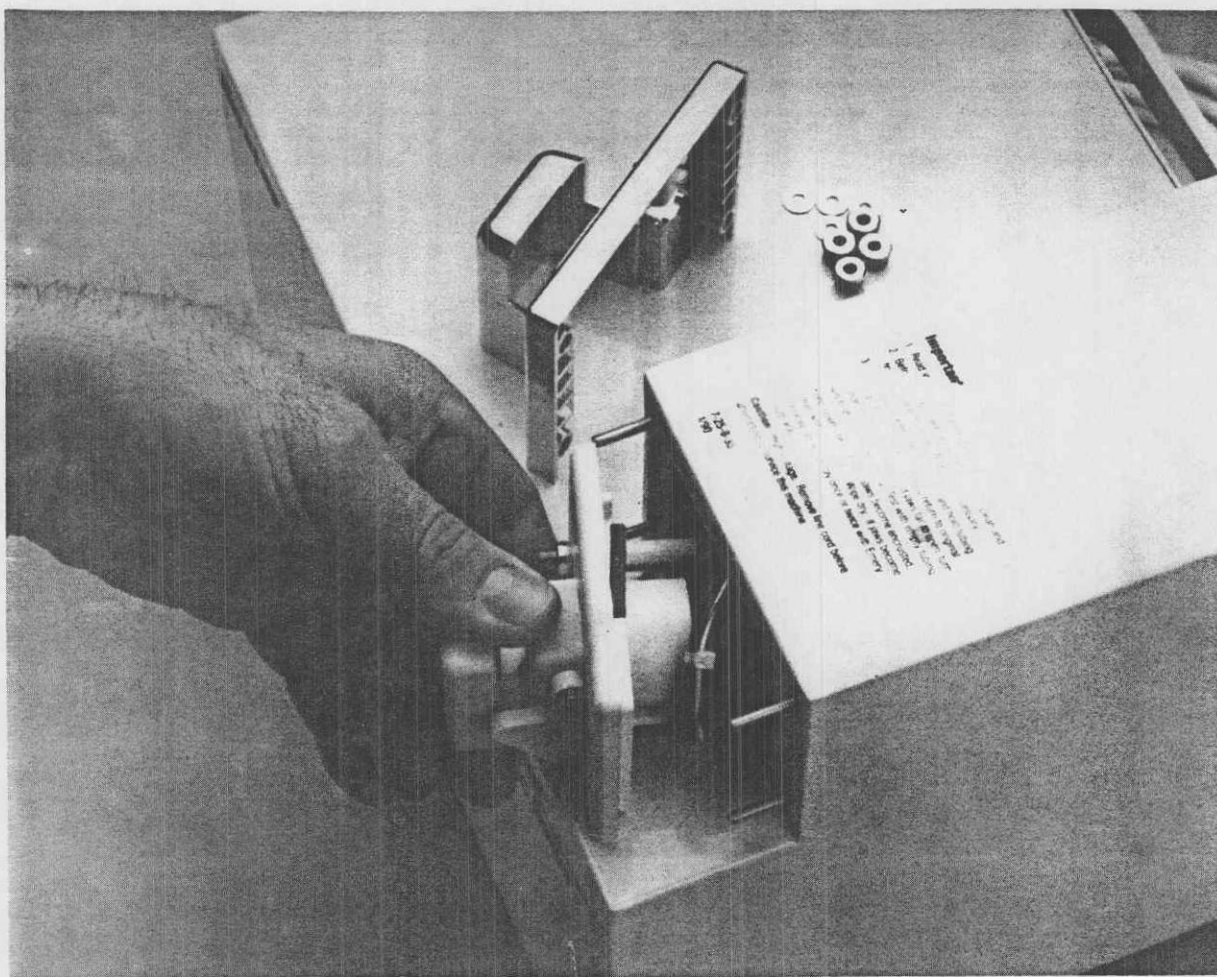


Figure 4-1 Sealer Head Removal

4.3 Access to Interior

Access to the interior of the Hematron® Dielectric Sealer is gained by removing the rear panel.

Caution: Disconnect the AC power cord from line voltage before removing the rear panel.

The rear panel may be removed by removing the twelve perimeter screws securing the rear panel to the cabinet (see Figure 4-2). Slide the chassis out from the rear of the cabinet until the white nylon control cable connector is accessible. Disconnect the control cable connector and continue to remove the chassis from the cabinet until the banana plug RF connector is accessible. Disconnect the RF connector by pulling the two banana plug insulated housings apart (see Figure 4-3). Slide the chassis completely out from the rear of the cabinet.

Reverse this procedure for reassembly.

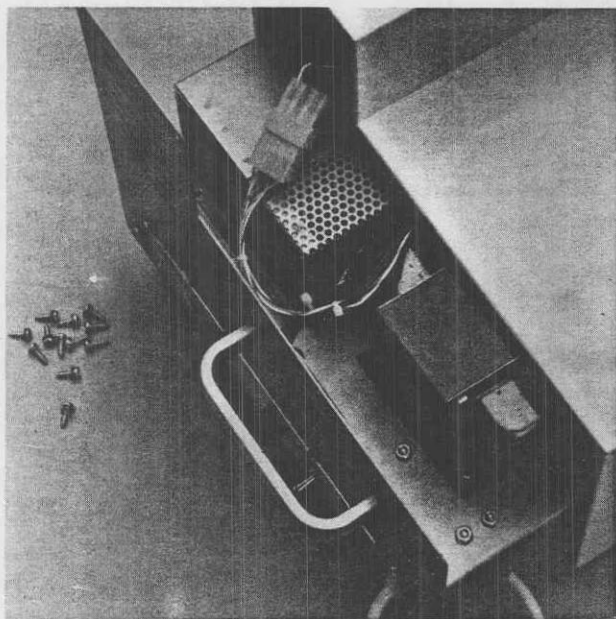


Figure 4-2 Access to Interior

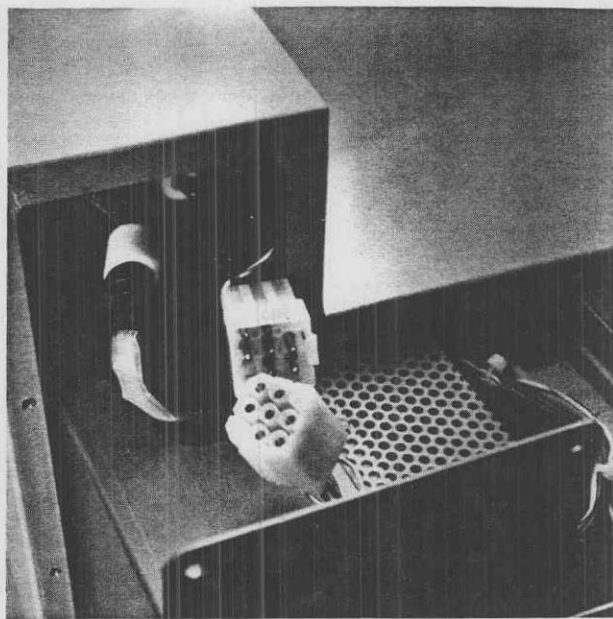


Figure 4-3 Control Cable and RF Banana Plug Connector

4.4 Access to RF Generator

Access to the RF generator is gained by removing the shielded enclosure top. After removing the chassis from the cabinet, remove the four screws securing the RF generator enclosure (see Figure 4-4). The RF generator enclosure may now be lifted to expose the oscillator vacuum tube and associated RF generator components.

4.5 Circuit Board Removal

The timer circuit board is held in place on the chassis by four corner screws and four flat washers (see Figure 4-4). To remove the circuit board, unplug the nylon connector and remove the four corner screws and washers. Note that the nylon connector is a self locking type and requires locking ears to be compressed to free the connector from the circuit board. The circuit board may now be lifted from the chassis. When reassembling, be sure to use washers with the screws.

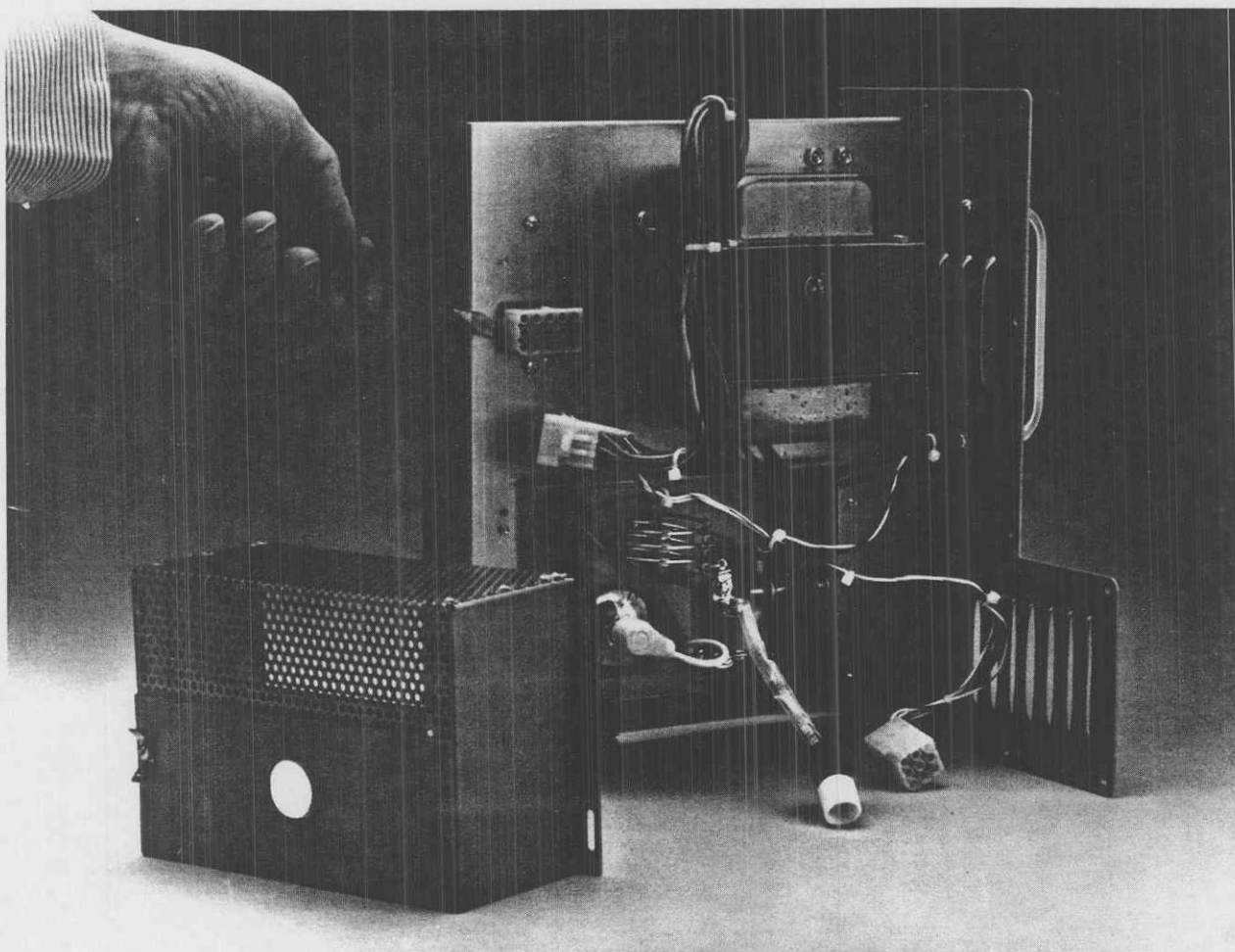


Figure 4-4 Access to RF Generator and Timer Circuit Board

4.6 Adjustments

The Hematron® Dielectric Sealer is factory adjusted for proper operation and normally should require no further adjustment. In the event that service is necessary, the unit should be checked and readjusted as necessary.

4.6.1 Seal Thickness

Perform a series of seals on tubing filled with tap water, as described in the operational test. Determine that the seal is complete and that the tubing can be readily separated at the seal. Leaks should not result after sealed segments are detached from one another. Seal thickness has been factory set at 0.006 to 0.009 inch. If adjustment is required, the thickness may be adjusted without removing the chassis from the cabinet.

To adjust seal thickness, remove the splash shield and the electroplated EMI shield by removing the four thumbnuts and washers. Lift the shields off the sealing head and locate the seal thickness adjustment screw beneath the sealing jaws. Turn this screw clockwise to decrease seal thickness and counterclockwise to increase seal thickness (see Figure 4-5).

Caution: Do not turn the adjustment screw more than 1/2 turn in either direction from the factory setting. A setting for very thin seals will cause excessively long sealing times. A setting for thick seals will make the seals difficult to separate.

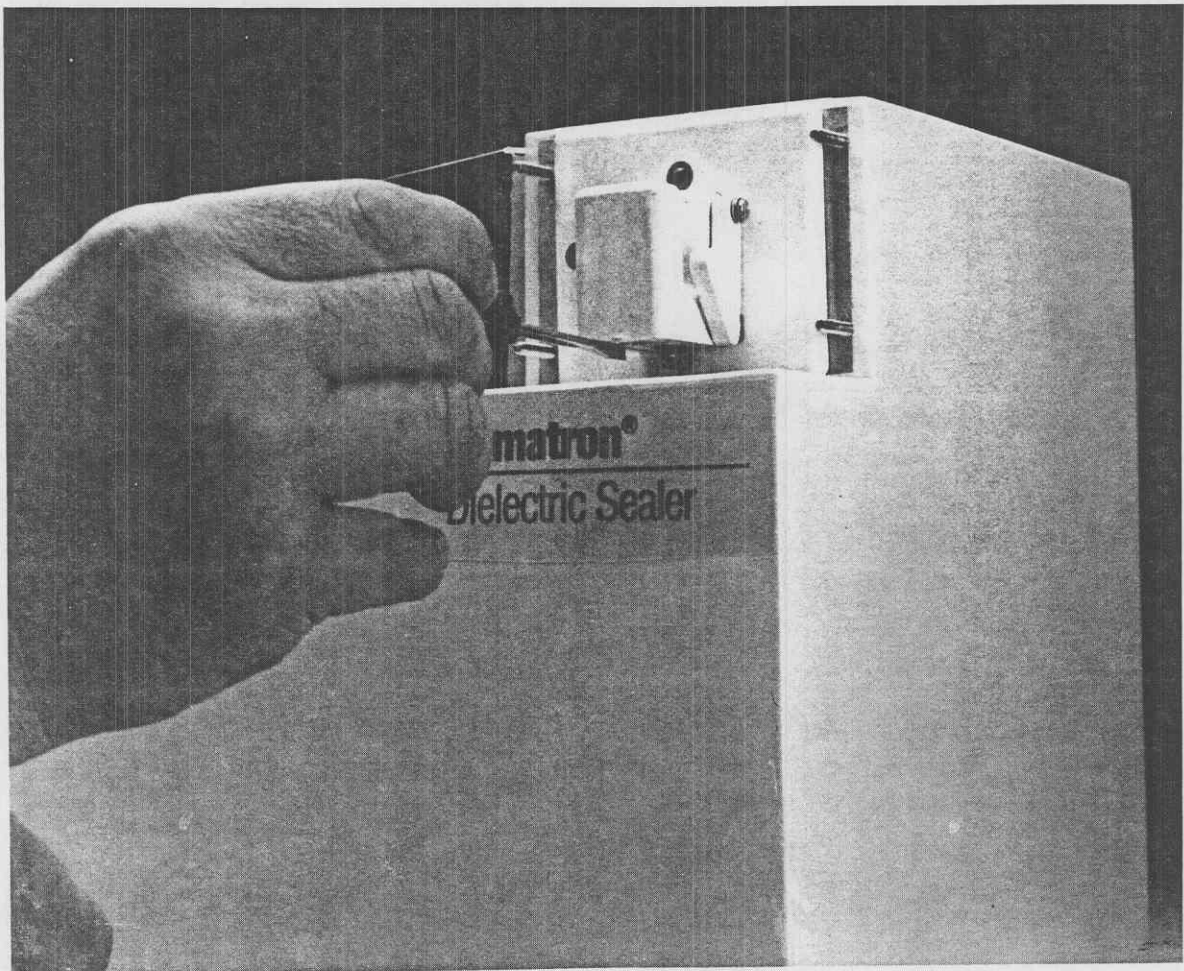


Figure 4-5 Seal Thickness Adjustment Screw

4.6.2 Jaw Alignment

In order to make effective seals, it is necessary that the surfaces of the sealing electrodes be parallel. Although this adjustment has been made at the factory, arcing or irregular seals indicate that the jaw needs to be realigned. To perform this function, the sealer head must be removed from the chassis. See the heading "Sealer Head/Replacement" for detailed instructions.

Once the sealing head has been removed, thoroughly clean the electrodes. If arcing has resulted in pitted electrodes, be sure to clean the surfaces with emery cloth before performing the alignment procedure. See Section 2, Operation for cleaning instructions.

Jaw alignment is checked visually. Sight through the gap formed between the electrodes and manually close the sealer jaw by pressing on the solenoid plunger. As the jaw closes, note that the space between electrodes should remain the same from top to bottom. If either the top or bottom touch before the opposite side, realignment is necessary (see Figure 4-6).

In addition to top/bottom alignment described above, the jaw should also be checked for angular alignment. This is done by sighting down from the top of the sealer head with the electrodes in contact with each other. The jaw is properly aligned when the flat surface of the moving electrode is squarely in contact with the fixed electrode (see Figure 4-7).

To accommodate realignment, the diameter of the solenoid plunger shaft has been reduced in an area close to the moving electrode. By grasping the moving electrode with a duck bill or long nose pliers, the plunger shaft may be bent so that the moving electrode may be adjusted to the desired orientation. Since a considerable amount of force is required to bend the plunger shaft, use care with this procedure to avoid scoring the electrode surface.

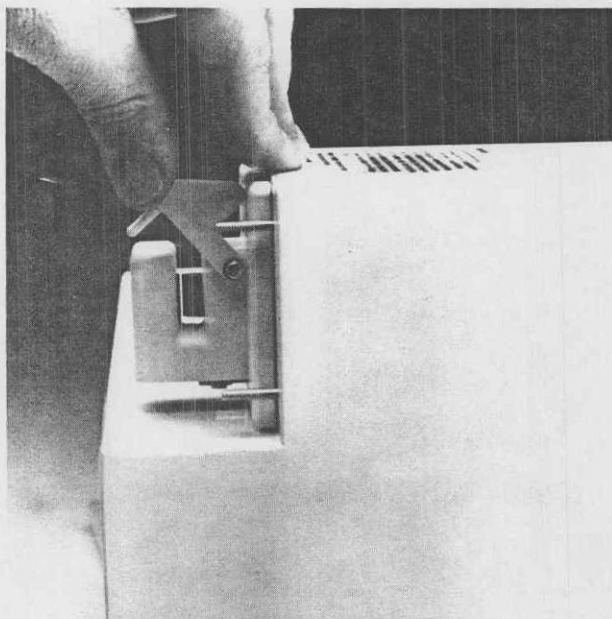


Figure 4-6 Proper Top to Bottom Electrode Alignment

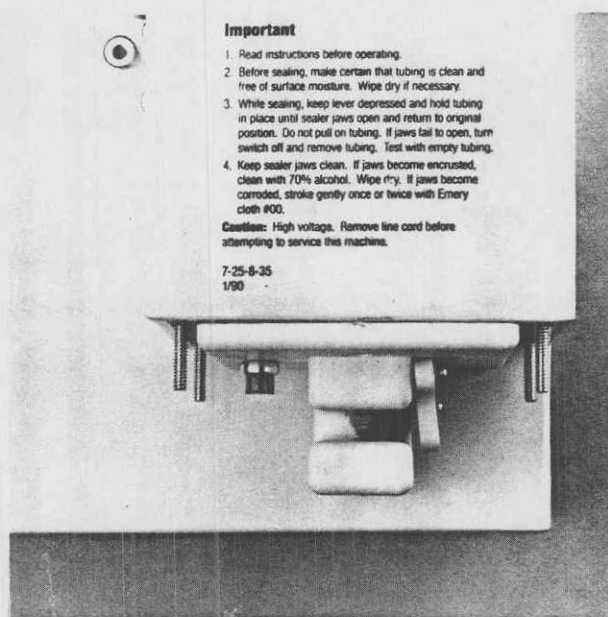


Figure 4-7 Angular Electrode Alignment

4.6.3 Maximum Sealing Time

Note: For this adjustment procedure, the Hematron® Dielectric Sealer will be operated without cabinet or head shielding. Make sure that this procedure is not performed by individuals with pacemakers or near sensitive electronic equipment.

The timer circuit is factory preset for a time from 3 to 5 seconds. To adjust maximum sealing time, both the sealer head and the chassis must be removed from the cabinet. Follow the procedures for head and chassis removal, located in this section. Once the head and chassis are removed from the cabinet, re-connect the control cable and RF cable from the head to the chassis. Place the sealing head on a non-conductive surface in such a way that moving parts will not be obstructed (see Figure 4-8).

Caution: The next sequence of steps requires application of line voltage to the Hematron® Dielectric Sealer. Once the Hematron® Dielectric Sealer is connected to a source of line voltage dangerous voltages are present. Exercise extreme caution during this phase of the adjustment procedure.

Plug the Hematron® Dielectric Sealer AC power cord into an appropriate source of 115 VAC 50-60 Hz or 230 VAC 50-60 Hz power corresponding to the Voltage Selector Switch setting on the back of the unit. Turn on the power switch and allow a two minute warm-up time before proceeding.

Actuate the sealing cycle with the wooden stem of a cotton swab, as described in Operational Tests, Maximum Sealing Time. Adjust the variable resistor P1 on the timer circuit board to obtain the required maximum sealing time (see Figure 4-9).

Once adjusted, turn the Hematron® Dielectric Sealer power switch off, disconnect the AC power cord from the power source and allow several minutes to pass to allow the filter capacitors to discharge. The unit may now be reassembled.

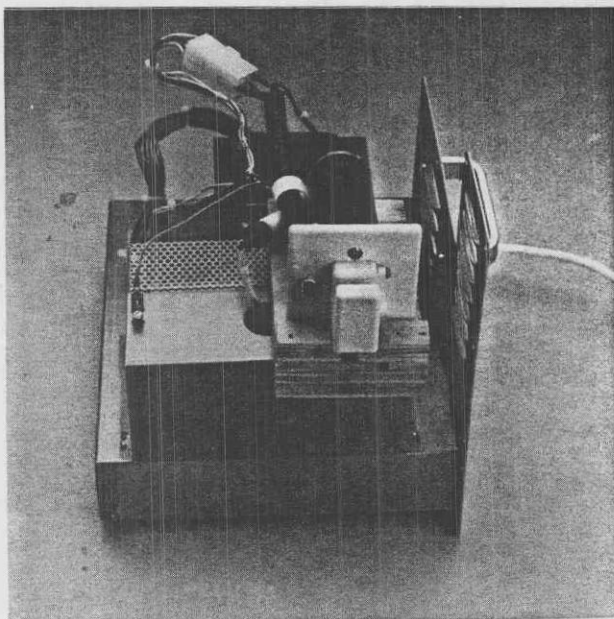


Figure 4-8 Placement of Sealer Head

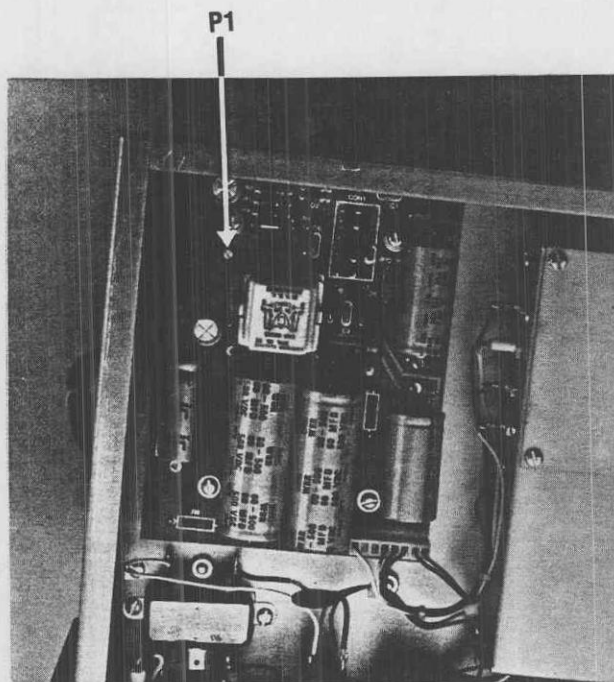


Figure 4-9 Adjustment of Timer

4.6.4 Operating Frequency

The RF generator is factory preset for a nominal operating frequency of 40.68 MHz. This frequency may be adjusted by varying capacitor C208, which can be reached with a non-conductive flat-blade screwdriver through an access hole in the rear panel of the chassis. To perform this adjustment, a suitable frequency counter and loop antenna probe are required. It is recommended to use an 80 MHz frequency counter with a minimum input sensitivity of 30 mV RMS into a 1 megohm input resistance, shunted by 25 pF. The loop probe antenna should be constructed per the diagram (see Figure 4-10). Once the antenna probe is assembled, the free end should be connected directly to the input of the frequency counter. The loop end should be placed in close proximity to the sealing head (see Figure 4-11). Unless frequency readings are erratic or of insufficient level, it will not be necessary to remove the external electroplated shield from the sealing head.

Operating frequency is measured by activating the sealing cycle with the wooden stem of a cotton swab. Be sure to allow a sufficient warm up time before performing this measurement. Note that during measurement, the rear panel should be secured to the chassis with all perimeter screws in place. To adjust the frequency, remove the white nylon plug just above the serial number plate on the rear panel. With a non-conductive flat-blade screwdriver, adjust capacitor C208 until 40.68 MHz is reached (see Figure 4-12). Replace the nylon plug when the adjustment is completed.

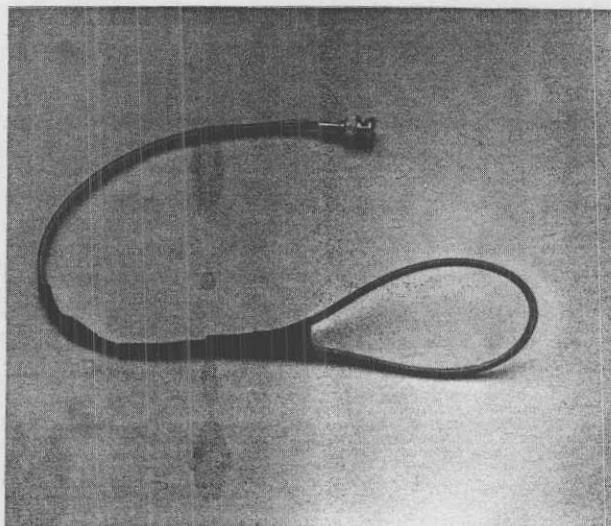


Figure 4-10 Loop Antenna Probe

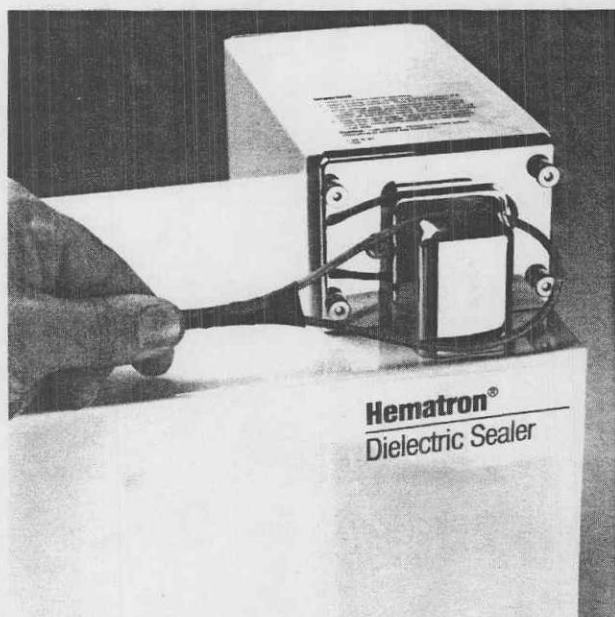


Figure 4-11 Location of Antenna Loop

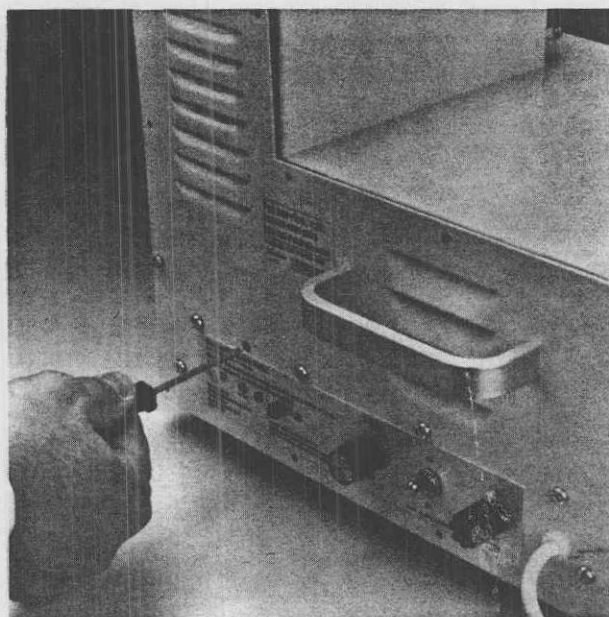


Figure 4-12 Frequency Adjustment

4.7 Troubleshooting Checklist

Problem	Check												
Pilot light fails to light	<ul style="list-style-type: none">• Verify unit is plugged into an appropriate power source of 115 VAC or 230 VAC, 50-60 Hz as selected with the Voltage Selector Switch and that power source is turned on.• Check fuse F1, switch S1, filter FLT1, line cord and pilot light DS1, switch S2 (locked in 115 VAC or 230 VAC position as required).												
Jaws fail to close when tubing is inserted	<ul style="list-style-type: none">• Examine that actuator arm closes switch S3.• Check for shorts in limit switch S4.• Inspect C4.• Check general performance of timer circuit board. This is best performed by swapping out entire timer board assembly.• Check solenoid and associated wiring.• Check transformer T1 primary for open thermal fuses.• Check 22 VAC winding on T1.												
Arc forms across jaws	<ul style="list-style-type: none">• Make sure surface of Blood-Pack® Unit tubing is dry.• Clean sealing jaws, and burnish with emery cloth as outlined under "Operation, Sealer Head Cleaning".• If sealer head is carbonized, replace head assembly.• Check electrode alignment. Perform alignment procedure.												
Jaws close but do not seal	<p>If jaws close, but then quickly open:</p> <ul style="list-style-type: none">• Check seal thickness adjustment. Turn adjustment screw clockwise for a thinner seal.• Check timer circuit board. Inspect C4, variable resistor P1 and associated circuitry. Replace timer circuit board.• Check sealing head. Inspect C21. <p>If jaws close and open upon time out:</p> <ul style="list-style-type: none">• Check RF and ground sealing head connections.• Check RF cable connection to stationary electrode.• Inspect oscillator circuit components.• Check performance of vacuum tube V1. Verify that plate cap wire is attached to V1. Replace V1.• Inspect ground wiring, particularly to oscillator circuitry and Heat Control potentiometer.• Check voltages to RF generator as follows (non sealing):<table><tr><td>J2-8:</td><td>+790 VDC</td><td>Check C13, C12, D6, D5, R5, R8, R9, C9, T1</td></tr><tr><td>J2-3:</td><td>+150 VDC</td><td>Check REC1, C1, C14, R11, T1</td></tr><tr><td>J2-4:</td><td>6.3 VAC</td><td>Check T1, V1</td></tr><tr><td>J2-5:</td><td>-150 VDC</td><td>Check REC1, C5, C8, R10, T1, K2</td></tr></table>• Check timer circuit board relay K2.	J2-8:	+790 VDC	Check C13, C12, D6, D5, R5, R8, R9, C9, T1	J2-3:	+150 VDC	Check REC1, C1, C14, R11, T1	J2-4:	6.3 VAC	Check T1, V1	J2-5:	-150 VDC	Check REC1, C5, C8, R10, T1, K2
J2-8:	+790 VDC	Check C13, C12, D6, D5, R5, R8, R9, C9, T1											
J2-3:	+150 VDC	Check REC1, C1, C14, R11, T1											
J2-4:	6.3 VAC	Check T1, V1											
J2-5:	-150 VDC	Check REC1, C5, C8, R10, T1, K2											

Problem	Check
Jaws seal and lock closed	<ul style="list-style-type: none">• Check timer circuit board and associated wiring.• Inspect timer relay K1 and transistor Q1.
Sealing time too long	<ul style="list-style-type: none">• Check RF connection to sealing head.• Turn Heat Control clockwise to increase sealing power.• Replace vacuum tube V1.• Verify that seal thickness is not too thin. Adjust seal thickness screw counterclockwise to increase seal thickness.

5.0 Diagrams and Bills of Materials

This section contains the schematic diagram of the circuit, assembly drawings and bills of material for the various subassemblies. It is included in the service manual so that reference information is available for replacement assemblies. The section is arranged into functional groups or assemblies with the parts list shown before the figure to facilitate recognition and identification of individual parts and replaceable assemblies.

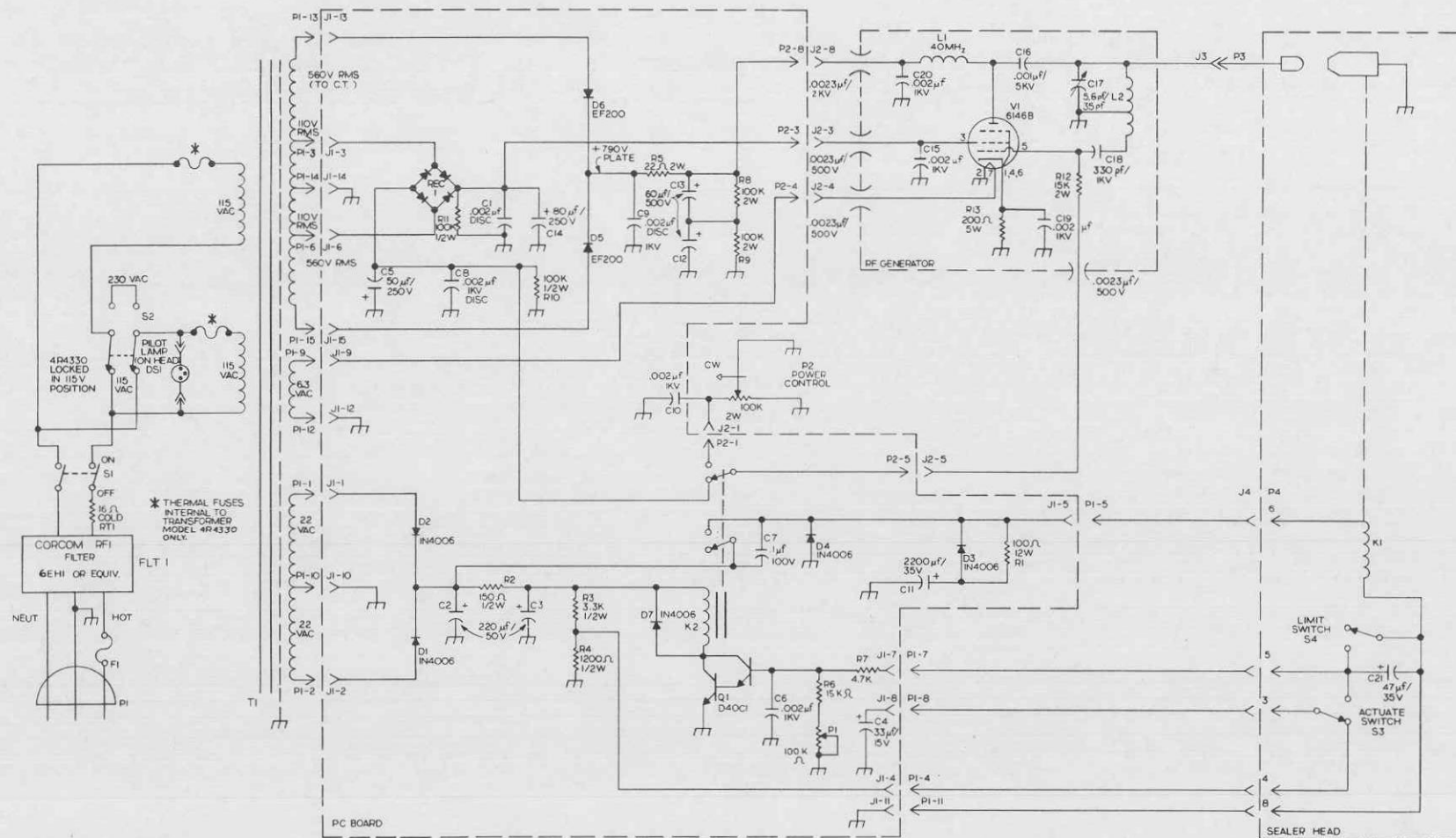
5.1 Assembly Parts List Information

The assembly parts list shows the item number, part number, quantity per assembly, assembly level and description for all parts contained in assemblies. For these tables, the following headings apply:

Item number:	Identifies the various components shown on the illustration (assembly drawing)
Part number:	The number assigned to each part in the assembly
Quantity per assembly:	Shows the number or amount of each part used in the assembly
U/M:	The unit of measure
Assembly level:	Indicates the level of the part in the complete assembly
Source:	For Baxter internal use
Description:	Briefly describes the part in the assembly

5.2 Replacement Parts Information

When servicing the Hematron® Dielectric Sealer, Baxter Healthcare Corporation recommends replacing defective items with components, parts or assemblies purchased from Fenwal Product Service. Some individual items are of a critical nature and must be replaced with the identical component or part from the same manufacturer. All these components, parts and assemblies or their latest equivalent are maintained in service inventory. Contact Fenwal Product Service for complete information regarding this instrument.



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TITLE: SCHEMATIC - HEMATRON

DWG. NO. D-17-H-00-579

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PAGE

CHANGE NO.

1

W87299

BILL OF MATERIAL

ASSY, HEMATRON P.C. BOARD

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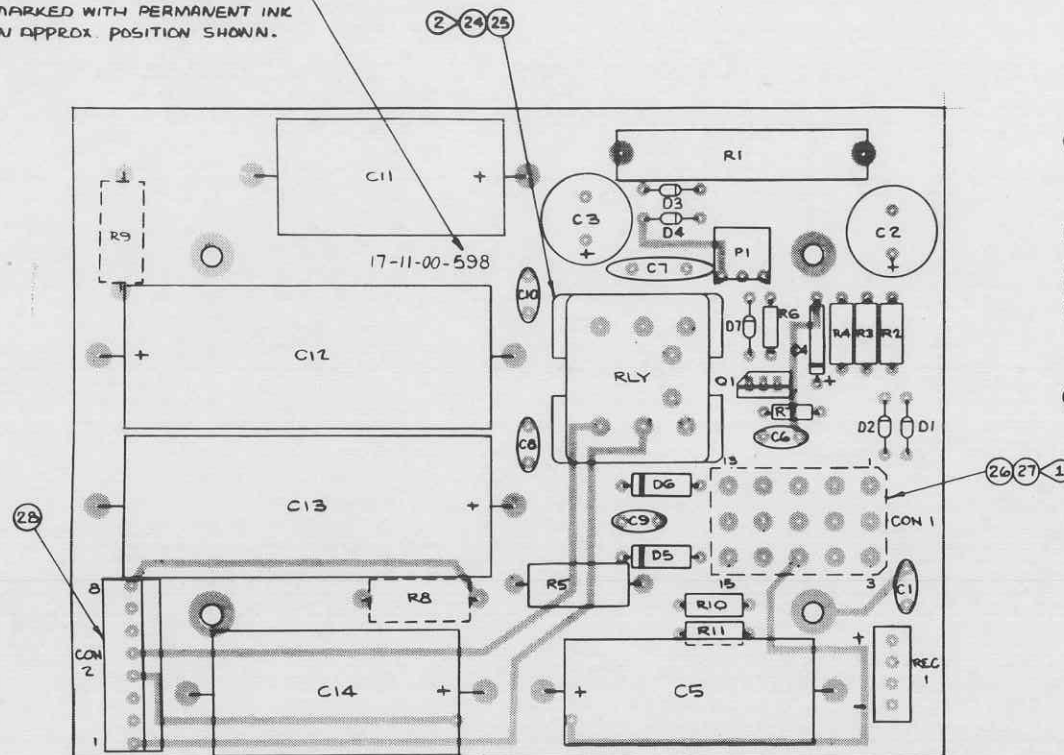
PACKING:

MFG/PCS:

ITEM	PART	QTY	E	C	U	M	A	L	S	DESCRIPTION	D
13	02-17-01-344	1							EA 1	P CAPACITOR, WET SLUG TANTALUM 33 MF, 15V	S
23	02-17-01-362	1							EA 1	P TRANSISTOR, NPN HIGH GAIN	S
19	02-17-01-436	5							EA 1	P DIODE, IN4006, RECTIFIER, PRV 800V	
2	02-17-01-449	1							EA 1	P RESISTOR, 100 OHM, 12W, 5% WIREWOUND	S
6	02-17-01-933	1							EA 1	P RESISTOR 2W, 5% 22 OHM CARBON COMPOSITION	
11	02-17-01-937	5							EA 1	P CAPACITOR, .002 MF, 1000V, CERAMIC DISC	S
12	02-17-01-938	2							EA 1	P CAPACITOR, 220MF, 50VDC ELECTROLYTIC P.C. MOUNT	S
14	02-17-01-939	1							EA 1	P CAPACITOR, 50MF, 250VDC, TUBULAR ELECTROLYTIC	S
17	02-17-01-940	2							EA 1	P CAPACITOR, 60MF, 500V, TUBULAR ELECTROLYTIC	S
18	02-17-01-941	1							EA 1	P CAPACITOR, 80MF, 250V,	S
20	02-17-01-942	2							EA 1	P DIODE, RECTIFIER, 2KV PRV 500 MA, EF200	S
15	02-17-01-945	1							EA 1	P CAPACITOR, .1MF, 100V, CERAMIC DISC	S
16	02-17-01-946	1							EA 1	P CAPACITOR, 2200MF, 35V, TUBULAR ELECTROLYTIC	S
21	02-17-01-949	1							EA 1	P RECTIFIER, SILICONE FULL-WAVE BRIDGE, 600 PRV	S
24	02-17-01-950	1							EA 1	P RELAY, 24 VDC DPDT P.C. BOARD TERM SPACE	S
25	02-17-01-951	1							EA 1	P SOCKET, RELAY, 8 PIN, PRINTED CIRCUIT	S
28	02-17-01-952	1							EA 1	P CONN, ASSEM. MALE, 8PIN P.C. POLARIZING & LOCKING	S
26	02-17-01-953	1							EA 1	P CONN. HSG. RECEPTACLE, 15 PIN FOR .093 TERMINALS	S
27	02-17-01-960	15							EA 1	P CONTACT, FEMALE P.C. TAIL .093 DIA	S
8	02-17-02-047	1							EA 1	P RESISTOR 1/4W 5% CARBON COMP RC07 4.7K(P0132-4701)	
5	02-17-02-154	1							EA 1	P RESISTOR 1/2W 5% CARBON COMP RC20 1.2K(P0423-0477)	
3	02-17-31-123	1							EA 1	P RESISTOR 1/2W 5% CARB COMP RCR 20 150 OHM	
4	02-17-31-124	1							EA 1	P RESISTOR 1/2W 5% CARB COMP RCR20 3.3K OHM	
10	02-17-31-125	2							EA 1	P RESISTOR 1/2W 5% CARB COMP RCR20 100K OHM	
9	02-17-31-126	2							EA 1	P RESISTOR 2W 5% CARB COMP RCR42 100K OHM	
22	02-17-31-196	1							EA 1	P POTENTIOMETER 100K OHM CERMET SQ. SINGLE-TURN	S
7	02-17-31-197	1							EA 1	P RESISTOR 1/4 W 5% CARBON COMP RC07 15K	S
1	17-11-00-576	1							EA 1	F HEMATRON P.C. BOARD	S

C

APPROX. .12 HIGH CHARACTERS
MARKED WITH PERMANENT INK
IN APPROX. POSITION SHOWN.



VIED FROM COMP. SIDE

ITEM #	COMPONENT REF. DESIGNATION
2	R1
3	R2
4	R3
5	R4
6	R5
7	R6
8	R7
9	R8, 9
10	R10, 11
11	C1, 6, 8, 9, 10
12	C2, 3
13	C4
14	C5
15	C7
16	C11
17	C12, 13
18	C14
19	D1, 2, 3, 4, 7
20	D5, 6
21	REC 1
22	P1
23	Q1

NOTES:

- ITEM #3 9(2) & 26 TO BE INSERTED FROM BOTTOM OF ITEM #1 & HAND SOLDERED FROM COMPONENT SIDE OF ITEM #1 AFTER WAVE SOLDERING OPERATION.
- ITEM #24 TO BE INSERTED IN ITEM #25 AFTER WAVE SOLDERING & PRIOR TO FINAL TEST.
- NOTE ORIENTATION OF KEY ON Q1.
- LAST COMPONENT REF. DESIGNATOR USED: R11 C14 D7 P1 Q1 REC1 CONN 2
- IF FREON WASH IS USED, C5, C11-14 ARE TO BE INSERTED AFTER WAVE SOLDER & FREON WASH OPERATIONS HAVE BEEN COMPLETED.

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TITLE ASSY, HEMATRON P.C. BOARD		
DATE	REV. A	REV.
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DOCUMENT NO.	REV.
17-11-00-500	
PAGE	CHANGE NO.
1	W16347

BILL OF MATERIAL

ASSEMBLY, SEALER HEAD

D

RPTG PART:

PRINT:

PACKING:

MFG/PCS:

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3	02-17-01-202	1	EA	1						P TIE, WRAP FOR 3/4 INCH DIA. CABLES
5	02-17-01-466	1	EA	1						P SCREW PAN HD. #4-40X1/2" SLOT S.S. (Q0801001518)
35	02-17-02-184	1	EA	1						P NUT, #2-56-28 HEX STANDARD, S/S (R1050-0051)
37	02-17-31-091	0.002	OZ	1						P GLYPTOL, G.E. #1201 RED ENAMEL
15	02-17-31-115	1	EA	1						P SCREW/WASHER ASSY #8-32 X 1/2, SLOT PAN HD., INT.
10	02-17-31-116	1	EA	1						P SCREW, SET #6-32 X 1/4, CONE PT., HEX SOCKET.
7	02-17-31-117	1	EA	1						P SCREW, SELF-TAP #6 X 1/4, TYPE AB, SLOT HEX HD.,
6	02-17-31-118	1	EA	1						P SCREW, MACH. #10-32 X 1/4, SLOT FIL. HD., NYLOK, S/S
4	02-17-31-119	3	EA	1						P SCREW/WASHER ASSY #6-32 X 1/2, CR. REC. PAN HD.,
1	02-17-31-120	3	EA	1						P SCREW, MACH. #2-56 X 3/8, SLOT PAN HD, S/S
11	02-17-31-129	1	EA	1						P TERMINAL, 2-45 DEG MALE TABS .250 X .032
13	02-17-31-130	3	EA	1						P TERM. FEMALE FOR .250 TAB, 16-14AWG, NON INS.
14	02-17-31-131	1	EA	1						P TERM. RING NON INS., #6 STUD, 18-14 AWG
31	02-17-31-132	1	EA	1						P BUMPER, RUBBER, BLACK, 5/16 DIA X 1/8 THK PAD
12	02-17-31-137	12	IN	1						P BRAID, FLAT 3/16W, TINNED COPPER, 15 AWG 25 AMP
18	02-17-31-151	1	EA	1						P NEON INDICATOR LAMP 125V 1/3W W/10" LEADS
17	02-17-31-155	1	EA	1						P CLAMP, CABLE 1/4 DIA. NYLON
16	02-17-31-156	1	EA	1						P CLAMP, CABLE, 5/8 DIA. NYLON
8	02-17-31-158	5.5	IN	1						P GROMMET CONTINUOUS FOR PANEL THK TO .036 (2 DGA)
20	02-17-31-159	1	EA	1						P EYELET, .152 OD. X .219 LG. X .245 FLANGE
19	02-17-31-166	3	EA	1						P TERMINAL, CRIMP .093 MALE PIN TIN, CHAIN

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ASSEMBLY, SEALER HEAD

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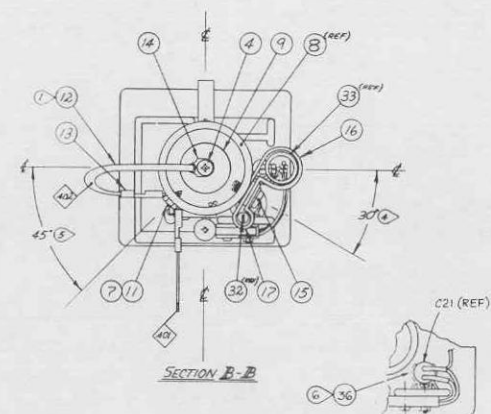
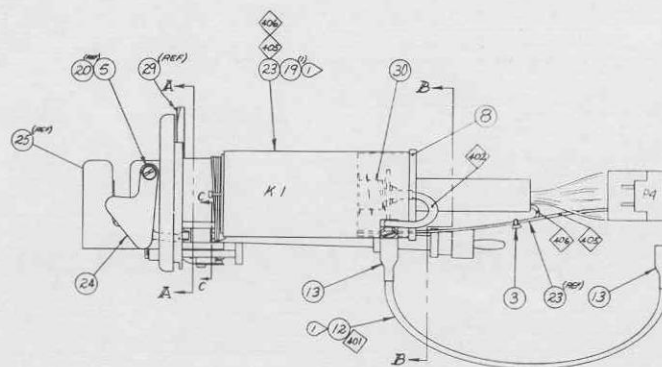
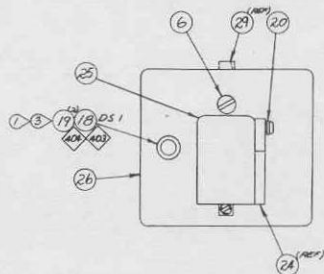
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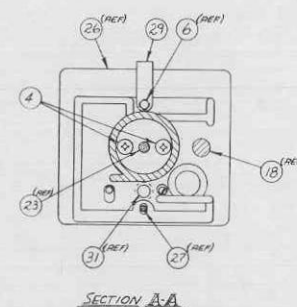
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34	02-17-31-182	1	EA	1						P SCREW, MACH. PAN HD, SLOTTED #2-56X 1/2 STST PASSIVATED
36	02-17-31-183	1	EA	1						P CLIP, COMPONENT PUC FOR 3/8 DIA. PART
26	17-11-00-501	1	EA	1						F FACEPLATE
24	17-11-00-504	1	EA	1						D F ACTUATOR ARM
22	17-11-00-505	1	EA	1						A F PLUNGING ELECTRODE
27	17-11-00-507	1	EA	1						B F LIMIT SWITCH ACTUATOR
28	17-11-00-508	1	EA	1						A F ACTUATOR NUT
29	17-11-00-509	1	EA	1						A F HEAD LATCH ARM
23	17-11-00-532	1	EA	1						B P SOLENOID AND SHAFT
25	17-11-00-541	1	EA	1						B F ELECTRODE HOUSING (REWORK)
	17-11-00-574	1	EA	.2						C F ELECTRODE HOUSING MOLD LAYOUT
2	17-11-00-547	2	EA	1						D F SWITCH INSULATOR
32	17-11-00-553	1	EA	1						A A ASSEMBLY, SEALER CONNECTOR
33	17-11-00-557	1	EA	1						B A ASSEMBLY, SEALER HARNESS
21	17-11-00-563	1	EA	1						C A STATIONARY ELECTRODE AND PIN ASSEMBLY
30	17-11-00-567	1	EA	1						A F SPRING SOLENOID PLUNGER
	17-11-00-589	AR		1						A R WIRE LIST, ASSEMBLY SEALER HEAD



SECTION C-C
SCALE NONE



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1	W16348

BILL OF MATERIAL

ASSEMBLY, SEALER HARNESS

C

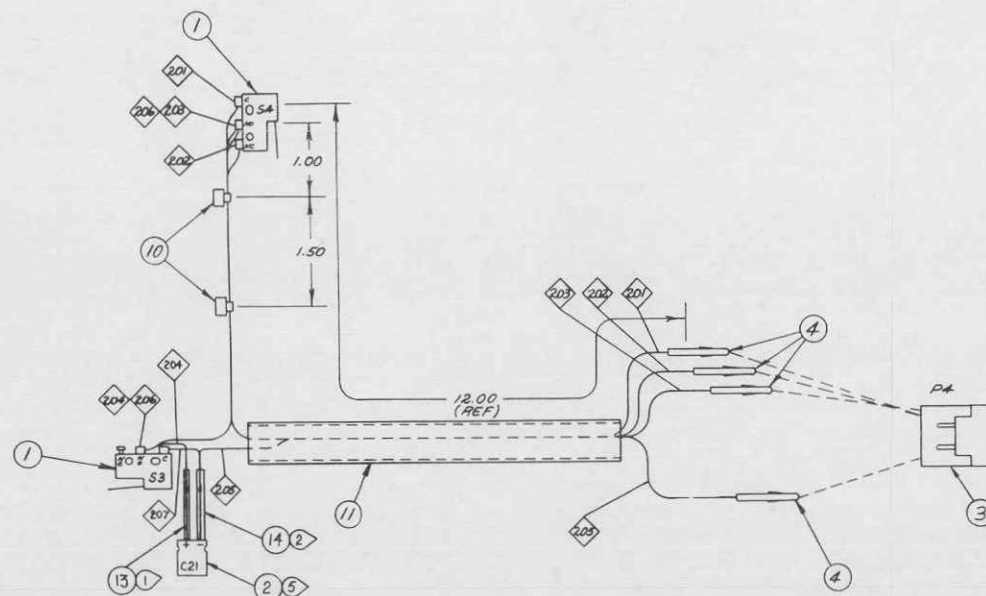
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PRINT:

PACKING:

MFG/PCS:

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1	02-17-01-250	2			EA	1	P	SWITCH, SUBMINIATURE SPDT 11AMPS 125 VAC
14	02-17-01-286	1			IN	1	P	TUBING, HEAT SHRINK POLYOLEFIN 1/8 DIA
8	02-17-01-293	2.25			IN	1	P	WIRE HK-UP 24GA UL TYPE 1007 YEL (V3522410004)
12	02-17-01-294	2.25			IN	1	P	WIRE HK-UP 24 GA UL TYPE 1007 ORN (V3522410003)
9	02-17-01-295	14			IN	1	P	WIRE HK-UP 24 GA UL TYPE 1007 BLK (V3522410000)
6	02-17-01-300	11.5			IN	1	P	WIRE HK-UP 24 GA UL TYPE 1007 BLU (V3522410006)
13	02-17-01-849	0.08333			FT	1	P	TUBING, HEAT SHRINK POL 3/32 DIA BLK
2	02-17-01-948	1			EA	1	P	CAPACITOR, 47 MFD/35V RADIAL LEAD ELECTROLYTIC
5	02-17-31-160	12			IN	1	P	WIRE, HK-UP 24 GA UL TYPE 1007 WHT/BLU
7	02-17-31-161	11.75			IN	1	P	WIRE, HK-UP 24GA. UL TYPE 1007 GREEN VINYL INS.
11	02-17-31-164	5.5			IN	1	P	TUBING HEAT SHRINK 1" SEMI RIGID IRRAD. POLYOLEFIN
4	02-17-31-166	4			EA	1	P	TERMINAL, CRIMP .093 MALE PIN TIN, CHAIN
3	02-17-31-181	1			EA	1	P	CONNECTOR HOUSING PLUG, 9 CIRCUIT NYLON
	17-11-00-581	AR				1	R	WIRE LIST, ASSEMBLY SEALER HARNESS A



NOTES:

- ① SOLDER "+" LEG OF ITEM ② TO 204. SOLDER JOINT AND LEG OF ITEM ② TO BE COMPLETELY COVERED BY ITEM ⑬. AVOID EXCESSIVE HEATING OF ITEM ② WHILE ITEM ⑬ IS BEING HEAT SHRUNK.
- ② SOLDER "-" LEG OF ITEM ② TO 205 AND 207. SOLDER JOINT AND LEG OF ITEM ② TO BE COMPLETELY COVERED BY ITEM ⑭. AVOID EXCESSIVE HEATING OF ITEM ② WHILE ITEM ⑭ BEING HEAT SHRUNK.
3. REFER TO WIRE LIST.
4. ~~xxx~~ DENOTES WIRE NUMBER.
- ⑤ CUT LEADS OF ITEM ② TO APPROXIMATELY .75" LENGTH.

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TITLE ASSEMBLY HARNESS SEALER HARNESS		
DATE CH2	NEXT ASSEM.	
DWG. NO. C1711-00-557		REV. A

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DOCUMENT NO.	REV.
17-11-00-553	
PAGE	CHANGE NO.
1	W59583

BILL OF MATERIAL

ASSEMBLY, SEALER CONNECTOR

B

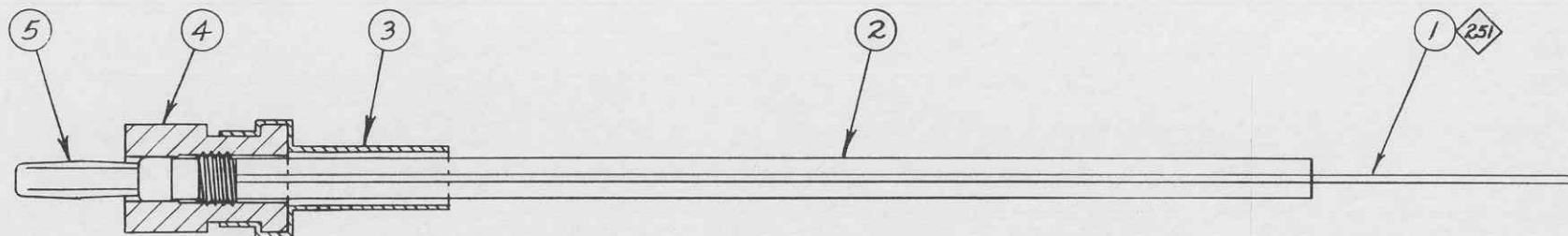
RPTG PART:

PRINT:

PACKING:

MFG/PCS:

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5	02-17-31-133	1			EA	1	P	PLUG, BANANA, SOLDERLESS 15 AMP A.C.
1	02-17-31-137 6.5				IN	1	P	BRAID, FLAT 3/16W, TINNED COPPER, 15 AWG 25 AMP
2	02-17-31-163 5				IN	1	P	TUBING, SHRINK TEFLON CLEAR
4	17-11-00-554	1			EA	1	F	BANANA PLUG CASE
	17-11-00-586	AR				1	R	WIRE LIST, ASSEMBLY SEALER CONNECTOR A



NOTES:

1. REMOVE HANDLE FROM ITEM ⑤
PRIOR TO ASSEMBLY AND DISCARD.
2. SOLDER ITEM ① TO ITEM ⑤
PRIOR TO INSERTION INTO ITEM ④.
3. REFER TO WIRE LIST A17-11-00-586.
4. XXX DENOTES WIRE NUMBER.

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TITLE ASSEMBLY SEALER CONNECTOR		
MATERIAL <i>W</i>	NEXT ASSEMBLY	REV.
DWG. NO. B17-11-00-553		

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17-11-00-556		
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1	W59583	

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ASSEMBLY, CONNECTOR

B

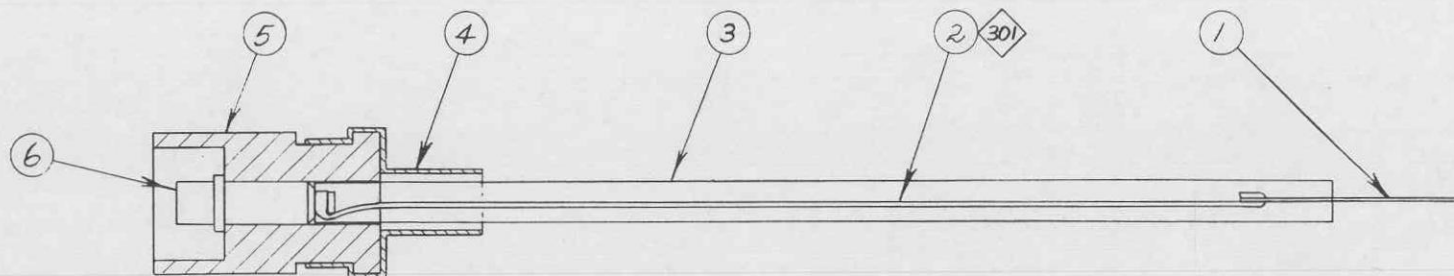
RPTG PART:

PRINT:


PACKING:

MFG/PCS:

ITEM	PART	QTY	E	C	UM	AL	S	DESCRIPTION
4	02-17-02-497	1				IN 1	P	TUBING, SHRINKABLE, 1/2 ID
6	02-17-31-134	1				EA 1	P	JACK, BANANA, UNINSULATED, 15 AMP A.C.
2	02-17-31-137	4.5				IN 1	P	BRAID, FLAT 3/16W, TINNED COPPER, 15 AWG 25 AMP
1	02-17-31-138	1				EA 1	P	TERMINAL, SOLDER LUG LOCKING TYPE #6 HOLE
3	02-17-31-163	4.5				IN 1	P	TUBING, SHRINK TEFLON CLEAR
5	17-11-00-555	1				EA 1	F	BANANA JACK CASE
	17-11-00-587	AR				1	R	WIRE LIST, ASSEMBLY CONNECTOR



NOTES:

1. REFER TO WIRE LIST A17-11-00-587.
2. SOLDER ITEM (2) TO ITEM (6) PRIOR TO INSERTION INTO ITEM (5).
3.  DENOTES WIRE NUMBER.

Baxter		
TITLE ASSEMBLY, CONNECTOR		
MAT'L. <i>CR</i>	NEXT ASSEM.	
DWG. NO. B 17-11-00-556		REV.

Baxter

DOCUMENT NO.	REV.
17-11-00-559	
PAGE	CHANGE NO.
1	W16351

BILL OF MATERIAL

ASSEMBLY, WIRE HARNESS

C

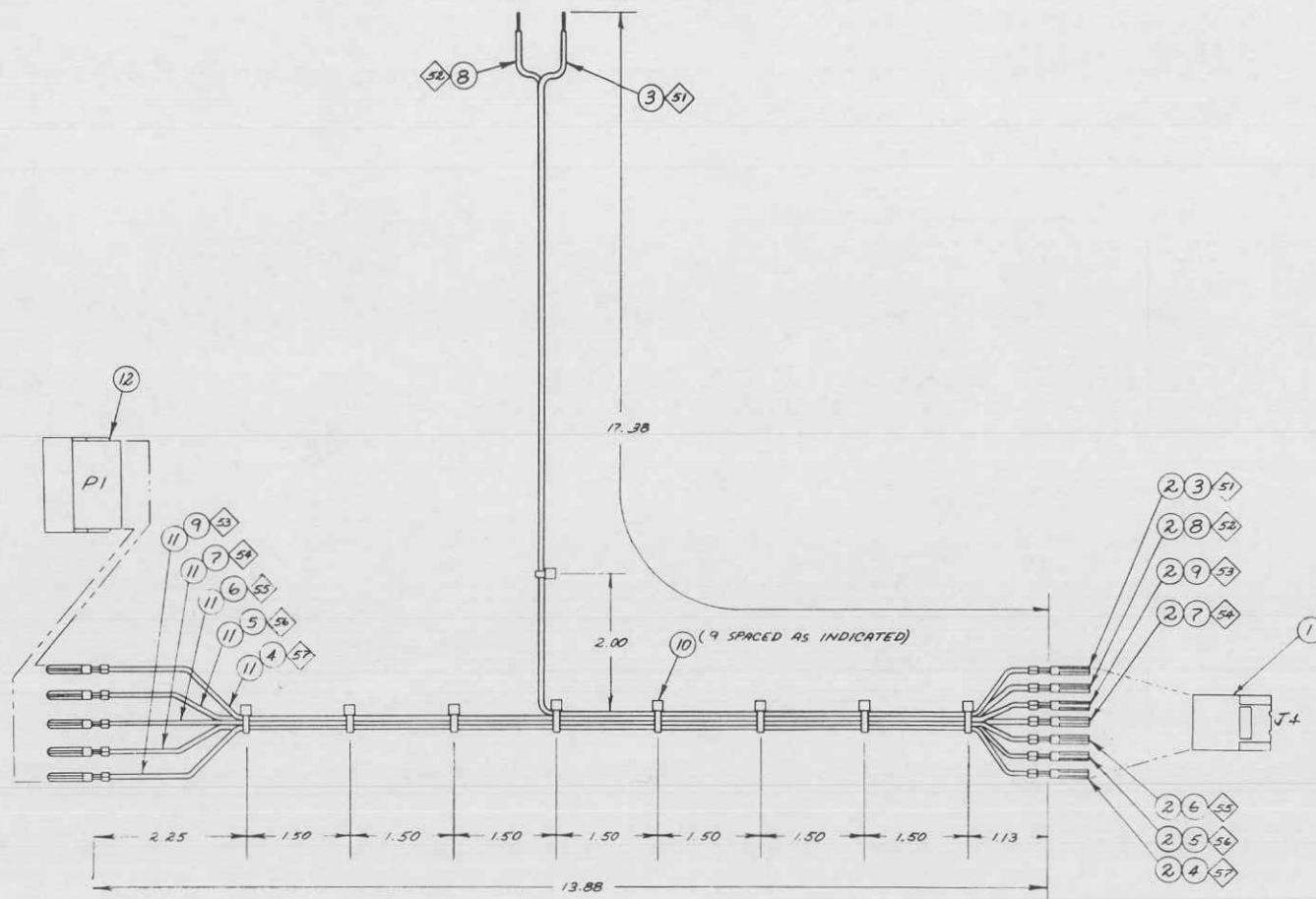
RPTG PART:

PRINT:

PACKING:

MFG/PCS:

ITEM	PART	QTY	E	C	U	M	A	L	S	DESCRIPTION
10	02-17-01-202	9							EA 1	P TIE, WRAP FOR 3/4 INCH DIA. CABLES
11	02-17-01-253	5							EA 1	P TERMINAL, .093" DIA MALE CRIMP
8	02-17-01-288	17.38							IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 WHT/GRN(V3522411095)
7	02-17-01-289	13.88							IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 WHT/RED(V3522411092)
3	02-17-01-295	17.38							IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 BLK (V3522410000)
5	02-17-01-298	13.88							IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 VIO (V3522410007)
9	02-17-01-299	13.88							IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 GRY (V3522410008)
12	02-17-01-954	1							EA 1	P CONNECTOR, HOUSING PLUG, 15 PIN FOR .093 TERMINALS
4	02-17-31-160	13.88							IN 1	P WIRE, HK-UP 24 GA UL TYPE 1007 WHT/BLU
6	02-17-31-161	13.88							IN 1	P WIRE, HK-UP 24GA. UL TYPE 1007 GREEN VINYL INS.
2	02-17-31-167	7							EA 1	P TERMINAL, CRIMP .093 FEMALE PIN TIN, CHAIN
1	02-17-31-180	1							EA 1	P CONNECTOR HOUSING RECEPTACLE, 9 CIRCUIT NYLON
	17-11-00-584	AR							1	R WIRE LIST, ASSEMBLY WIRE HARNESS A



NOTES:
 1. REFER TO WIRE LIST A17-11-00-584.
 2. 000 DENOTES WIRE NUMBER.

Baxter		
TITLE ASSEMBLY WIRE HARNESS		
DATE	NEXT ASSEM	REV.
		A
DWG. NO. C17-11-00-559		

DOCUMENT NO.	REV.
17-11-00-561	
PAGE	CHANGE NO.
1	W59583

BILL OF MATERIAL

ASSEMBLY, LOWER SHIELD

D

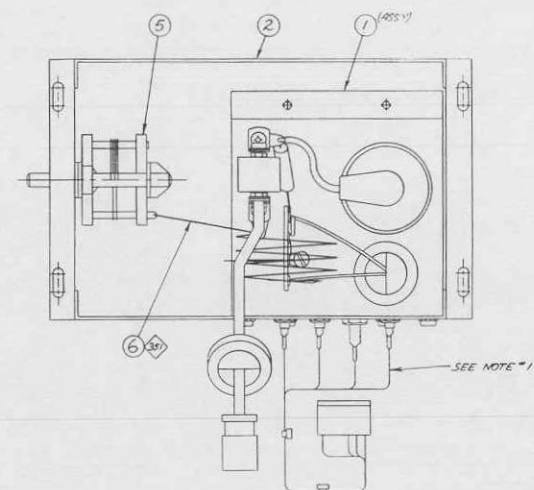
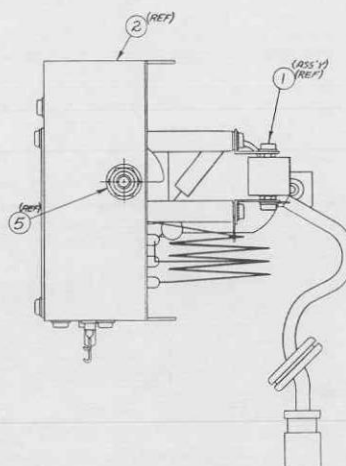
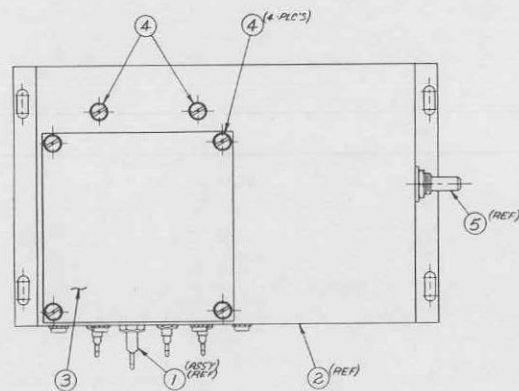
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PRINT:

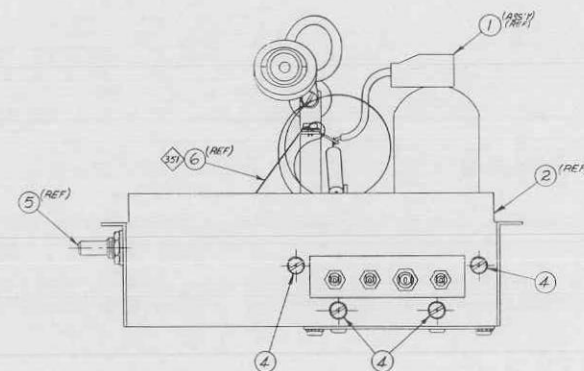
PACKING:

MFG/PCS:

ITEM	PART	QTY	E	C	UM	AL	S	DESCRIPTION
6	02-17-01-460	0.27			FT	1	P	WIRE, JUMPER, 16 GA, SOLID TINED COPPER (V5150508001)
5	02-17-01-468	1			EA	1	P	CAPACITOR, VARIABLE 5.6P.F. TO 35P.F. AIR DIELECTRI
4	02-17-31-005	10			EA	1	P	SCREW, WASHER ASSY #6-32 X 1/4 SLOT PAN HD. EXT.
3	17-11-00-546	1			EA	1	F	COVER PLATE A
1	17-11-00-562	1			EA	1	A	ASSEMBLY, R.F. GENERATOR D
2	17-11-00-570	1			EA	1	F	LOWER SHIELD C
	17-11-00-588	AR				1	R	WIRE LIST, ASSEMBLY LOWER SHIELD A



NOTES:
 1. THIS HARNESS OMITTED FROM ALL OTHER VIEWS FOR CLARITY.
 2. REFER TO WIRE LIST A17-11-00-5000.
 3. (30) DENOTES WIRE NUMBER.



Baxter
 TITLE ASSEMBLY LOWER SHIELD
 DWG. NO. D 17-11-00-561

Baxter

DOCUMENT NO.	REV.
17-11-00-562	
PAGE	CHANGE NO.
1	W59583

BILL OF MATERIAL

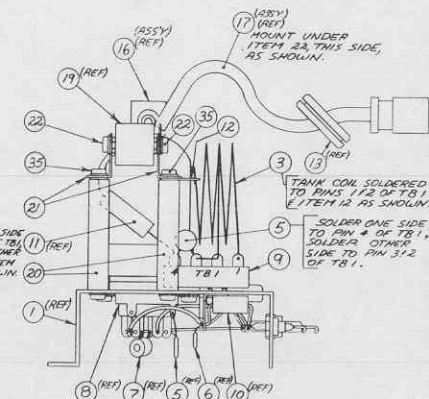
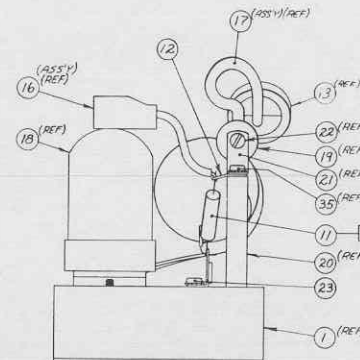
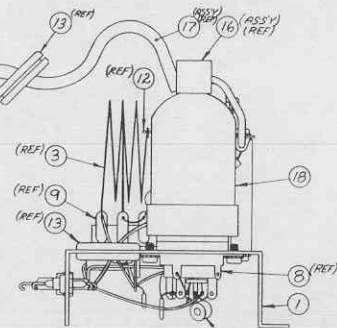
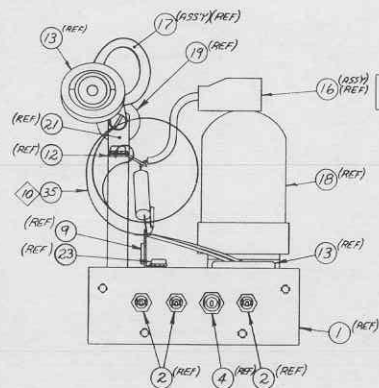
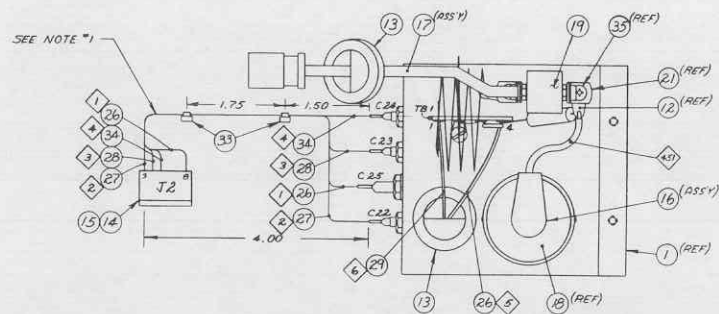
ASSEMBLY, R.F. GENERATOR				D	
RPTG PART:				PRINT:	
PACKING:				MFG/PCS:	
ITEM	PART	QTY	E C U M A L S	DESCRIPTION	
33	02-17-01-202	2	EA 1	P TIE, WRAP FOR 3/4 INCH DIA. CABLES	
32	02-17-01-287	2.5	IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 RED (U3522410002)	
30	02-17-01-293	2.5	IN 1	P WIRE HK-UP 24GA UL TYPE 1007 YEL (U3522410004)	
31	02-17-01-294	2.25	IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 ORN (U3522410003)	
27	02-17-01-295	7.5	IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 BLK (U3522410000)	
28	02-17-01-296	7	IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 BRN (U3522410001)	
29	02-17-01-298	3	IN 1	P WIRE HK-UP 24 GA UL TYPE 1007 VIO (U3522410007)	
34	02-17-01-315	5.5	IN 1	P WIRE, HOOK-UP 24GA. (7/32)300V.80 C.WHT. (U3522410009)	
7	02-17-01-425	1	EA 1	P RESISTOR, 200 OHM, 5W, 5% WIREWOUND	
35	02-17-01-460	0.27	FT 1	P WIRE, JUMPER, 16 GA, SOLID TINED COPPER (U5150508001)	
12	02-17-01-516	2	EA 1	P TERMINAL, SOLDER LUG, LOCKING #6 STUD	
5	02-17-01-937	3	EA 1	P CAPACITOR, .002 MF, 1000V, CERAMIC DISC	
6	02-17-01-947	1	EA 1	P CAPACITOR, 330PF, 1000V, CERAMIC DISC	
11	02-17-01-961	1	EA 1	P CHOKE, R.F. PLATE, 35 TO 110 MC. OPERATING RANGE	
20	02-17-01-963	2	EA 1	P STANDOFF, 3/8" O.D. X 2" LG., #6.32 THD. CERAMIC	
18	02-17-01-964	1	EA 1	P TUBE, BEAM POWER, TYPE 6146B	
8	02-17-01-965	1	EA 1	P SOCKET, TUBE 8 PIN MOLDED OCTAL	
9	02-17-01-968	2	EA 1	P TERMINAL STRIP, TIE DOWN LUG TYPE (4 LUGS)	
13	02-17-01-969	2	EA 1	P RUBBER GROMMET W/SPLIT WEB, FOR 3/4 HOLE	
25	02-17-01-978	1	EA 1	P NUT, HEX ZINC PLTD. STL. #6-32 W/EXI. TOOTH LOCK-	
22	02-17-31-005	4	EA 1	P SCREW, WASHER ASSY #6-32 X 1/4 SLOT PAN HD. EXT.	

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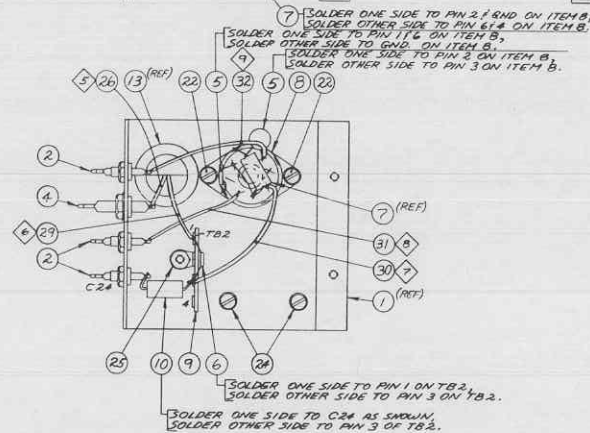
DOCUMENT NO.	REV.
17-11-00-562	
PAGE	CHANGE NO.
2	W59583

BILL OF MATERIAL

ASSEMBLY, R.F. GENERATOR				D	
RPTG PART:				PRINT:	
PACKING:				MFG/PCS:	
ITEM	PART	QTY	E C U M A L S	DESCRIPTION	
CONTINUED FROM PREVIOUS PAGE					
24	02-17-31-121	4	EA 1	P SCREW/WASHER ASSY #6-32 X 1/2, SLOT PAN HD.,	
23	02-17-31-122	1	EA 1	P SCREW/WASHER ASSY #6-32 X 5/16, SLOT PAN HD.,	
10	02-17-31-127	1	EA 1	P RESISTOR 2W 10% CARB COMP RCR42 15K OHM	
14	02-17-31-135	1	EA 1	P CONNECTOR, HSG, 6 CIRCUIT W/LOCKING RAMP, FEM.-	
4	02-17-31-139	1	EA 1	P CAPACITOR, 2300 PF, 2K VDC, FEED THRU	
19	02-17-31-149	1	EA 1	P CAPACITOR, CERAMIC .001 MFD 5K VDC, RF RATED	
21	02-17-31-152	2	EA 1	P BRACKET, UNIVERSAL, KEYSTONE #631	
2	02-17-31-153	3	EA 1	P CAPACITOR, 2300 PF 500 VDC FEED THRU	
15	02-17-31-154	4	EA 1	P TERMINAL, CRIMP FOR SINGLE SIDED HSG.	
26	02-17-31-162	10	IN 1	P WIRE, HK-UP 22GA. WHT 7/30 1000VDC 105 C PVC.	
3	17-11-00-552	1	EA 1	F TANK COIL	
	02-17-31-171	1	IN .2	P TANK COIL	
17	17-11-00-556	1	EA 1	A ASSEMBLY, CONNECTOR	
1	17-11-00-558	1	EA 1	F BRACKET, MOUNTING	
16	17-11-00-580	1	EA 1	A TUBE PLATE CAP WIRE ASSEMBLY	
	17-11-00-585	AR	1	R WIRE LIST, ASSEMBLY R.F. GENERATOR	



- NOTES:
1. WIRELESS OMITTED FROM ALL OTHER VIEWS FOR CLARITY.
 2. REFER TO WIRE LIST A12-11-00-585.
 3. (XX) DENOTES WIRE NUMBERS.



Baxter	
TITLE ASSEMBLY R.F. GENERATOR	
REV.	REV. ITEM
DWG. NO. D17-11-00-562	

Baxter

DOCUMENT NO.	REV.
17-11-00-560	
PAGE	CHANGE NO.
1	W76389

BILL OF MATERIAL

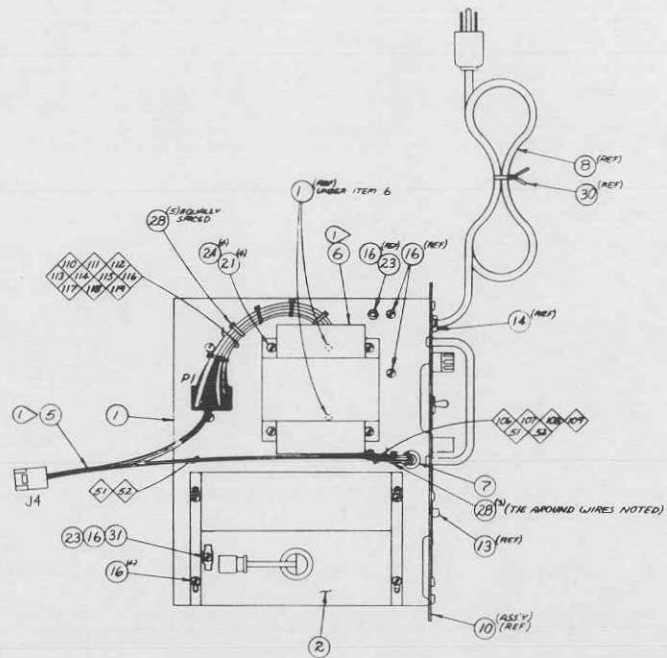
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RPTG PART: PRINT:									
PACKING: MFG/PCS:									
ITEM	PART	QTY	E	C	U	M	A	L	S
DESCRIPTION									
D									
28	02-17-01-202	10	EA	1	P	TIE, WRAP FOR 3/4 INCH DIA. CABLES			S
29	02-17-01-295	3	IN	1	P	WIRE HK-UP 24 GA UL TYPE 1007 BLK (V3522410000)			
26	02-17-01-315	5	IN	1	P	WIRE, HOOK-UP 24GA. (7/32)300V.80 C.WHT.(V3522410009)			
13	02-17-01-410	1	EA	1	P	SWITCH, SLIDE DPDT 6A 125 VAC			S
14	02-17-01-453	1	EA	1	P	BUSHING, STRAIN RELIEF			S
7	02-17-01-456	1	EA	1	P	BUSHING, SNAP, INSULATING			S
8	02-17-01-474	1	EA	1	P	CORD SET TYPE "SUT" 18GA 3 COND.			S
9	02-17-01-516	1	EA	1	P	TERMINAL, SOLDER LUG, LOCKING #6 STUD			S
6	02-17-01-944	1	EA	1	P	TRANSFORMER, POWER W/INTERNAL FUSES			S
11	02-17-01-957	1	EA	1	P	FILTER, R.F. POWER LINE INTERFERENCE			S
12	02-17-01-972	1	EA	1	P	THERMISTOR, IN RUSH CURRENT LIMITER			S
21	02-17-01-975	10	EA	1	P	SCREW-WASHER ASSY.#8-32X3/8 PAN HD. SLOT INT.TOOTH			
24	02-17-01-976	10	EA	1	P	NUT, HEX ZINC PLTD. STL.#8-32 W/EXT.TOOTH LOCKWASHER			
23	02-17-01-978	4	EA	1	P	NUT, HEX ZINC PLTD. STL. #6-32 W/EXT. TOOTH LOCK-			
20	02-17-01-979	4	EA	1	P	SCREW-WASHER ASSY.#6-32 X 3/8 PAN HD. SLOT.EXT.			
17	02-17-02-330	2	EA	1	P	STUD, SELF CLINCHING, FLUSH HEAD 6-32 X 5/16 LG.			S
16	02-17-31-005	14	EA	1	P	SCREW, WASHER ASSY #6-32 X 1/4 SLOT PAN HD. EXT.			
25	02-17-31-006	4	EA	1	P	WASHER, FLAT #6 MACH. ZINC PLT. STL.			
15	02-17-31-107	4	EA	1	P	STANDOFF, 1/4HEX X 1/2LG, 6-32 THRU ALUM IRIDITED			
22	02-17-31-108	2	EA	1	P	NUT, HEX #4-40, ZINC PLTD. STL.			
18	02-17-31-109	4	EA	1	P	LOCKWASHER, INT. TOOTH, #6 ZINC PLTD. STL.			

Baxter

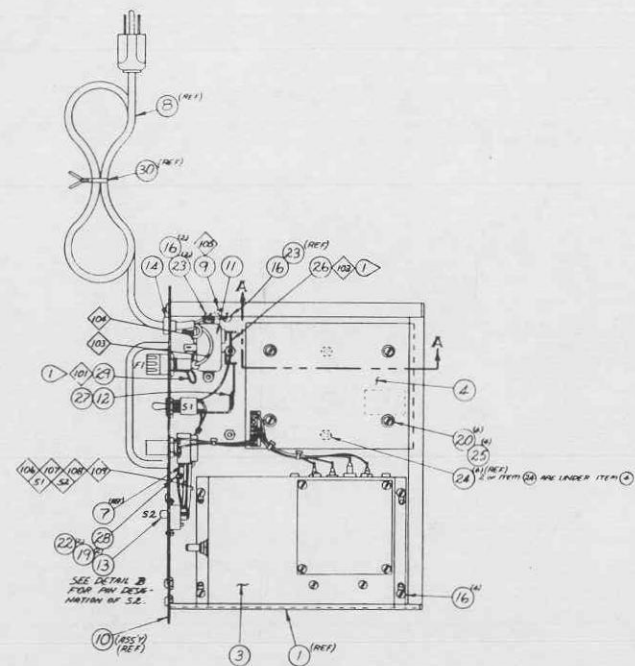
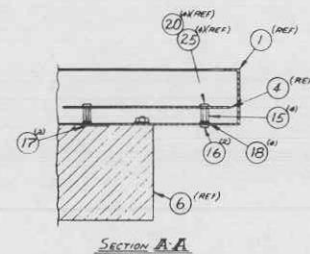
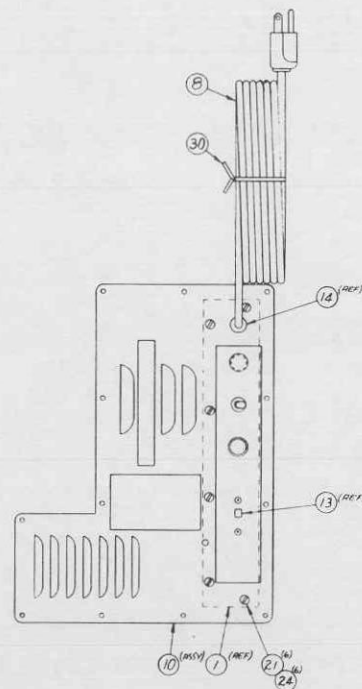
DOCUMENT NO.	REV.
17-11-00-560	
PAGE	CHANGE NO.
2	W76389

BILL OF MATERIAL

ASSEMBLY, CHASSIS D									
RPTG PART: PRINT:									
PACKING: MFG/PCS:									
ITEM	PART	QTY	E	C	U	M	A	L	S
DESCRIPTION									
D									
CONTINUED FROM PREVIOUS PAGE									
19	02-17-31-111	2	EA	1	P	SCREW MACH. #4-40 X 1/4, BUTTON HD. HEX			
31	02-17-31-129	1	EA	1	P	TERMINAL, 2-45DEG MALE TABS .250 X .032			S
30	02-17-31-169	6	EA	1	P	TWIST TIE 5/32" W X 6" L			
27	02-17-31-170	3	IN	1	P	TUBING, NON SHRINK PVC .034 I.D. X .016 WALL			
5	17-11-00-559	1	EA	1	A	ASSEMBLY, WIRE HARNESS C			S
3	17-11-00-561	1	EA	1	A	ASSEMBLY, LOWER SHIELD D			S
2	17-11-00-569	1	EA	1	F	UPPER SHIELD C			S
1	17-11-00-572	1	EA	1	F	CHASSIS D			S
10	17-11-00-578	1	EA	1	P	CABINET BACK PANEL ASSEMBLY C			S
	17-11-00-583	AR		1	R	WIRE LIST ASSEMBLY CHASSIS A			S
	17-11-00-598	1	EA	1	A	ASSY, HEMATRON P.C. BOARD			S



NOTES:
1. REFER TO WIRE LIST
2. (S) DENOTES WIRE NUMBER.



PIN: 1 LEFT
PIN: 1 RIGHT
PIN: C LEFT
PIN: C RIGHT
PIN: 2 LEFT
PIN: 2 RIGHT

DETAIL B
S2 PIN DESIGNATION
NOTE FOLD PINS 2 LEFT & 2 RIGHT
INWARD & SOLDER TOGETHER.

Baxter			
TITLE ASSEMBLY, CHASSIS			
REV. 1	REV. 2	REV. 3	REV. 4
DWG. NO. D17-11-00-560			REV. A

BILL OF MATERIAL

CABINET BACK PANEL ASSEMBLY

C

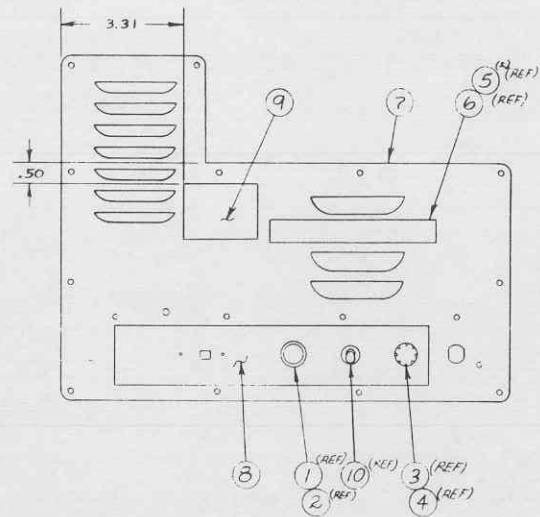
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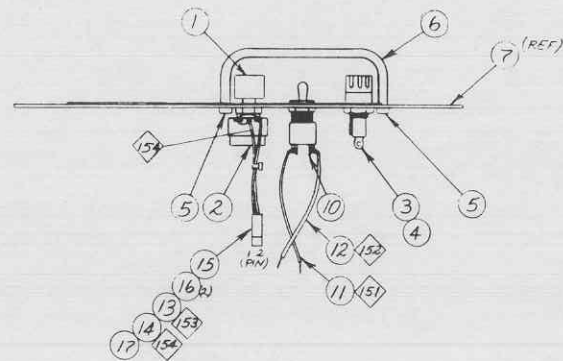
PACKING:

MFG/PCS:

ITEM	PART	QTY	E	C	UM	AL	S	DESCRIPTION	D
17	02-17-01-202	3			EA	1	P	TIE, WRAP FOR 3/4 INCH DIA. CABLES	S
12	02-17-01-287	6			IN	1	P	WIRE HK-UP 24 GA UL TYPE 1007 RED (V3522410002)	
11	02-17-01-296	6			IN	1	P	WIRE HK-UP 24 GA UL TYPE 1007 BRN (V3522410001)	
13	02-17-01-298	4.5			IN	1	P	WIRE HK-UP 24 GA UL TYPE 1007 VIO (V3522410007)	
10	02-17-01-409	1			EA	1	P	SWITCH, TOGGLE DPST	S
3	02-17-01-451	1			EA	1	P	FUSE HOLDER, 3AG 250V PANEL	S
6	02-17-01-452	1			EA	1	P	HANDLE, PANEL, ALUMINUM	S
2	02-17-01-958	1			EA	1	P	POTENTIOMETER, W/SPST SWITCH, 2-1/4 W 100 K	S
5	02-17-01-975	2			EA	1	P	SCREW-WASHER ASSY.#8-32X3/8 PAN HD. SLOT INT.TOOTH	
4	02-17-02-217	1			EA	1	P	FUSE, 2A SLO-BLO, 250V, 3AG (P0409-0117)	
15	02-17-31-136	1			EA	1	P	CONNECTOR, HSG, 2 CIRCUIT W/LOCKING RAMP, FEM.-	S
16	02-17-31-154	2			EA	1	P	TERMINAL, CRIMP FOR SINGLE SIDED HSG.	S
14	02-17-31-161	4.5			IN	1	P	WIRE, HK-UP 24GA. UL TYPE 1007 GREEN VINYL INS.	
1	02-17-31-195	1			EA	1	P	KNOB FOR 1/4" SHAFT, BLACK	S
8	07-24-08-001	1			EA	1	P	NAMEPLATE 4R4330	S
	17-11-00-599	1			EA	.2	R	SERIAL CABLE 115V	S
9	07-27-01-006	1			EA	1	P	BAXTER 24 SERVICE LABEL BASIC	S
7	17-11-00-573	1			EA	1	F	CABINET BACK PANEL D	S
	17-11-00-582	AR				1	R	WIRE LIST, CABINET BACK PANEL ASSEMBLY A	S



NOTES:
 1. REFER TO WIRE LIST A12-11-00-582
 2. \diamond DENOTES WIRE NUMBER.



Baxter		
TITLE CABINET BACK PANEL ASSEMBLY		
MAT'L	NEXT ASSEM	REV.
DWG. NO. C12-11-00-578		B

DOCUMENT NO.	REV.
17-11-00-575	
PAGE	CHANGE NO.
1	W59583

BILL OF MATERIAL

HEMATRON FINAL ASSEMBLY

D

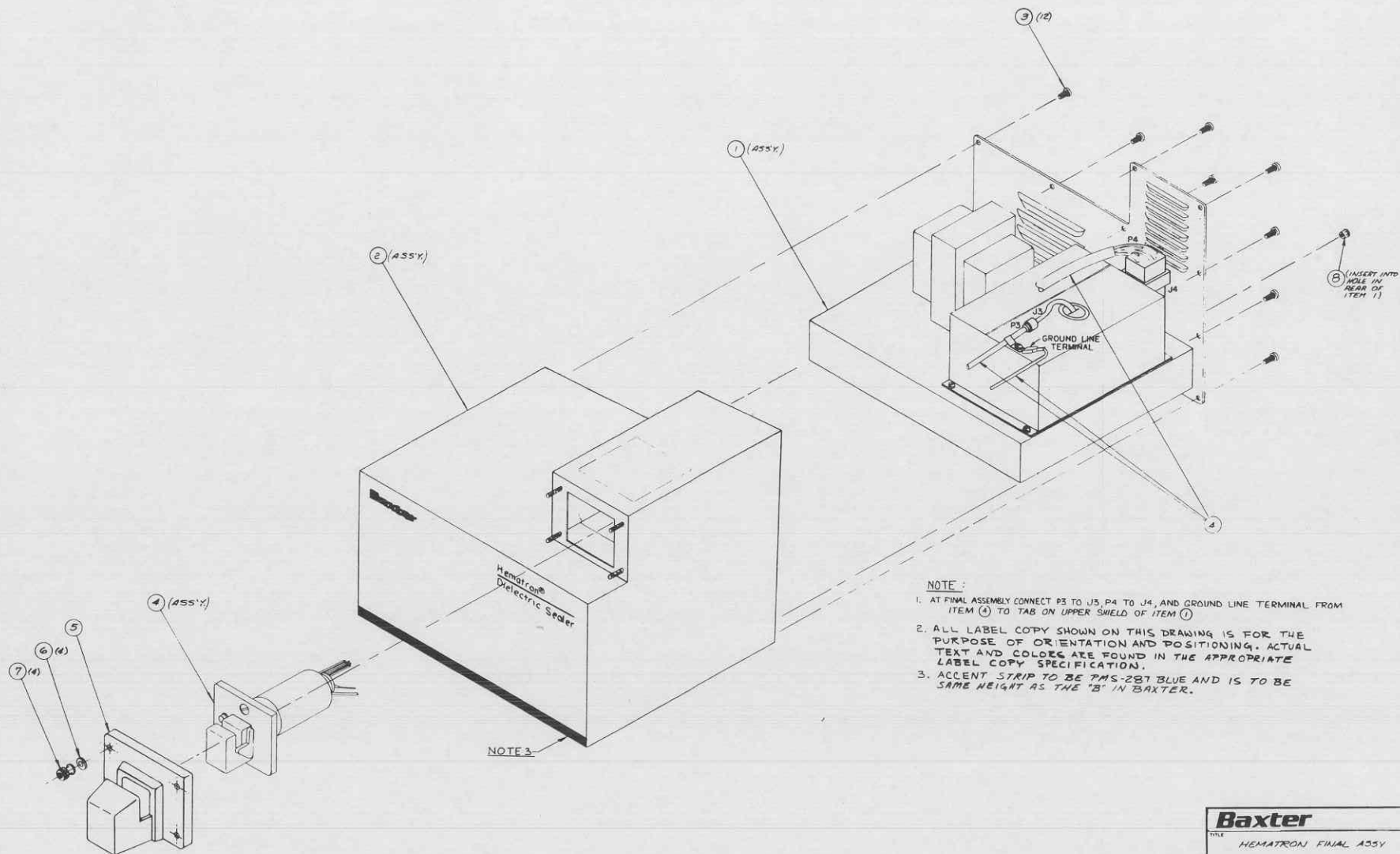
RPTG PART:

PRINT:

PACKING:

MFG/PCS:

ITEM	PART	QTY	E	C	UM	AL	S	DESCRIPTION
8	02-17-31-002	1			EA	1	P	PLUG BUTTON, HOLE, .250 DIA, WHITE
6	02-17-31-006	4			EA	1	P	WASHER, FLAT #6 MACH. ZINC PLT. STL.
7	02-17-31-110	4			EA	1	P	NUT, KNURLED THUMB, #6-32, NICKLE PLTD. BRASS
3	02-17-31-113	12			EA	1	P	SCREW, SELF-TAP #6 X 1/2 TYPE AB, CR. REC. PAN HD W/ INT. TOOTH LOCK
4	17-11-00-500	1			EA	1	A	ASSEMBLY, SEALER HEAD D
5	17-11-00-545	1			EA	1	F	R.F. SHIELD D
1	17-11-00-560	1			EA	1	A	ASSEMBLY, CHASSIS D
2	17-11-00-577	1			EA	1	A	CABINET HOUSING HARDWARE ASSEMBLY C



Baxter	
TITLE HEMATRON FINAL ASSY	
DATE	REV
DWG. NO. BL-D17-11-00-575	

Baxter

DOCUMENT NO.	REV.
17-11-00-577	
PAGE	CHANGE NO.
1	W59583

BILL OF MATERIAL

CABINET HOUSING HARDWARE ASSEMBLY

C

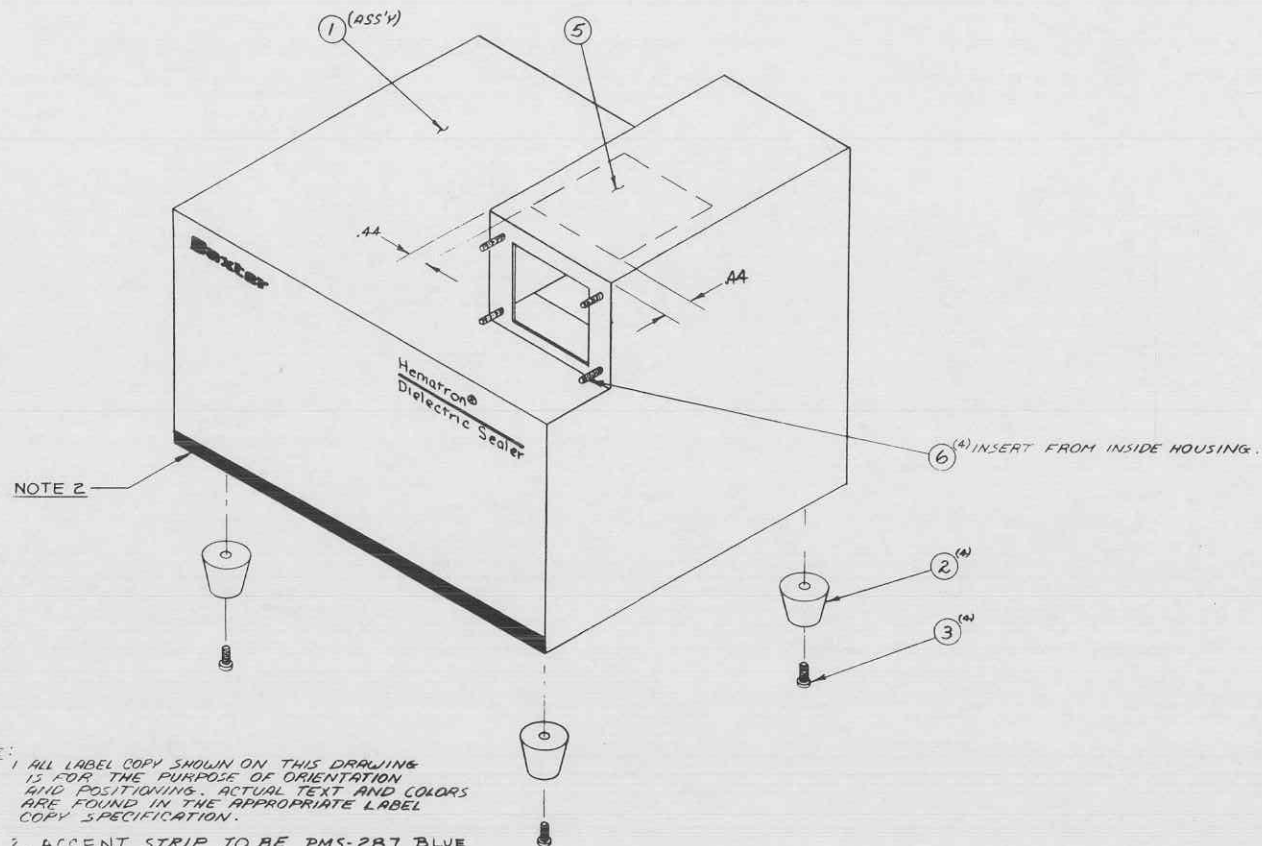
RPTG PART:

PRINT:

PACKING:

MFG/PCS:

ITEM	PART	QTY	E	C	U	M	A	L	S	DESCRIPTION
3	02-17-31-113	4		EA				1	P	SCREW, SELF-TAP #6 X 1/2 TYPE AB, CR. REC. PAN HD W/
6	02-17-31-114	4		EA				1	P	SCREW/WASHER ASSY #6-32 X 3/4 SLOT PAN HD., EXT.
2	02-17-31-172	4		EA				1	P	BUMPER, 1-1/8 DIA. X 3/4 HIGH, HI. DENS. POLYETHYL.
4	07-25-08-034	1		EA				1	P	SILKSCREEN, FRONT PANEL
5	07-25-08-035	1		EA				1	P	INSTRUCTION LABEL 4R4330/4R4340
1	17-11-00-568	1		EA				1	A	CABINET HOUSING ASSEMBLY B
4	07-25-08-037	1		EA				1	P	SILKSCREEN, FRONT PANEL (BAXTER)



- NOTE:**
1. ALL LABEL COPY SHOWN ON THIS DRAWING IS FOR THE PURPOSE OF ORIENTATION AND POSITIONING. ACTUAL TEXT AND COLORS ARE FOUND IN THE APPROPRIATE LABEL COPY SPECIFICATION.
 2. ACCENT STRIP TO BE PMS-287 BLUE AND IS TO BE SAME HEIGHT AS THE "B" IN BAXTER.

Baxter		
TITLE CABINET HOUSING HARDWARE ASSEMBLY		
DATE: <i>[Signature]</i>	DRAWN BY: <i>[Signature]</i>	REV. <i>[Signature]</i>
DWG. NO. C1711-00-577		REV. A